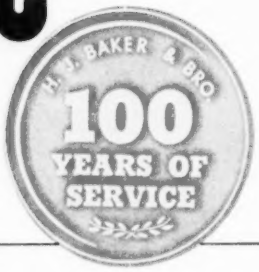
COMMERCIAL FERTILIZER

CONSOLIDATED WITH THE FERTILIZER GREEN BOOK

OCTOBER, 1950

Service



WHEN a representative of H. J. Baker & Bro. talks about service, let him tell you how this service could work for you. For over a century, this firm has built up a reputation for the right materials when you want them. In order to be able to furnish these materials, when needed, the firm has contacts with sources of supply throughout the world.

For the type of service that represents not only the seller—but the buyer as well, it will pay you to consult H. J. Baker & Bro. Make it a point to inquire next time you're in the market for our type of products, we are no farther from you than your telephone.

H. J. BAKER & BRO.
PRODUCTS
for the
FERTILIZER INDUSTRY

SULPHATE OF AMMONIA
CASTOR POMACE
COCOA PRODUCTS
NITROGENOUS
POTASH SALTS
SUPERPHOSPHATE
NITROGANIC TANKAGE
(Dried Activated Sewage Sludge)

H. J. BAKER & BRO.

271 MADISON AVENUE • NEW YORK 16, N. Y.
BALTIMORE, MD. CHICAGO, ILL. SAVANNAH, GA. TAMPA, FLA.

Safeguard Fertilizers and Chemicals against RAIN SNOW SLEET SUN

. . . with Hammond Multi-Wall Bags. They are weather-proof . . . special moisture-proof plies are used for products requiring extra protection.

HAMMOND Betterbags WELLSBURG, W.VA.

HAMMOND Multi-Wall BAGS

SEWN PASTED OPEN MOUTH VALVE STYLE

REPRESENTATIVES IN THE FOLLOWING CITIES

Chicago, Ill. Minneapolis, Minn. New York, N. Y.
Bluefield, Va. Philadelphia, Pa. Columbus, Ohio
Charlotte, N. C. Ligonier, Pa. Houston, Texas
Kansas City, Mo. Opelika, Ala.

HAMMOND BAG & PAPER CO.

General Offices: Wellsburg, W. Va.

Plants in Wellsburg, W. Va. and Pine Bluff, Ark.

McCloskey Buildings are Ideal For Your Fertilizer Plant

Your plant is housed efficiently at low cost in a McCloskey Building because the exclusive Rigidsteel* design is ideally suited to fertilizer plant operation. The heavy beam sections provide great ruggedness and extra resistance to corrosion. The extra headroom you get by elimination of outmoded trusses gives ample space for overhead conveyor systems without increasing the height of your building.

You benefit by McCloskey's experience in building fertilizer plants for others when you specify McCloskey Buildings. For information write McCloskey Company of Pittsburgh, 3412 Liberty Avenue, Pittsburgh 1, Pa.

**Rigidsteel is the trademark of the McCloskey Company of Pittsburgh*

McCloskey Company
of Pittsburgh

COMMERCIAL FERTILIZER

ESTABLISHED 1910

October, 1950

Vol. 81, No. 4

ADVERTISING INDEX

Published Monthly by

WALTER W. BROWN PUBLISHING CO., INC.

75 Third St. N. W., Atlanta, Georgia Phone Atwood 4160

ERNEST H. ABERNETHY, *President*

BRUCE MORAN, *Editor* V. T. CRENSHAW, *Business Manager*

Subscription rates: United States, Mexico and Cuba $2.00 per year. Foreign $4.00 per year.

In This Issue

Chicago Representative
ELON A. ABERNETHY
1323 S. Michigan Ave.—Room 400
Phone Harrison 7-3655

West Coast Representative
M. A. CALDWELL
2267 W. 24th St., Los Angeles, Cal.
Phone REPUBLIC 1-3050

COMMERCIAL FERTILIZER, entered as second class matter, October 12, 1910, at the post office at Atlanta, under the Act of March 3, 1879. Published monthly except semi-monthly in September, by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta, Georgia

Be Multiwall Wise

Acclimatize

Keep Bags From Getting Thirsty

Multiwall Paper Shipping Sacks are amazingly tough. They don't need to be pampered. But they *do* need reasonable care. Unless they're protected against moisture loss, they dry out and can't work their best when being packed, closed, or handled. In some sections of the country "drying out" may happen in winter, in other sections during the summer, depending on the humidity. But it's a simple matter to keep Multiwalls from getting thirsty. Bemis Multiwall Specialists show you how.

Bemis BEMIS BRO. BAG COMPANY

"America's No. 1 Bag Maker"

PEORIA, ILL. • EAST PEPPERELL, MASS. • SAN FRANCISCO, CALIF. • WILMINGTON, CALIF.
MOBILE, ALA. • VANCOUVER, WASH. • HOUSTON, TEXAS

Baltimore • Boise • Boston • Brooklyn • Buffalo • Charlotte • Chicago • Cleveland • Denver • Detroit
Indianapolis • Jacksonville, Fla. • Kansas City • Los Angeles • Louisville • Memphis • Minneapolis
New Orleans • New York City • Norfolk • Oklahoma City • Omaha • Phoenix • Pittsburgh • St. Louis
Salina • Salt Lake City • Seattle • Wichita

MAIL THIS COUPON TODAY!

BEMIS BRO. BAG CO., 408 Pine St., Box 46, St. Louis 2, Mo.

☐ Have Multiwall Specialist give information on care of bags.
☐ Send information on Multiwall specifications.

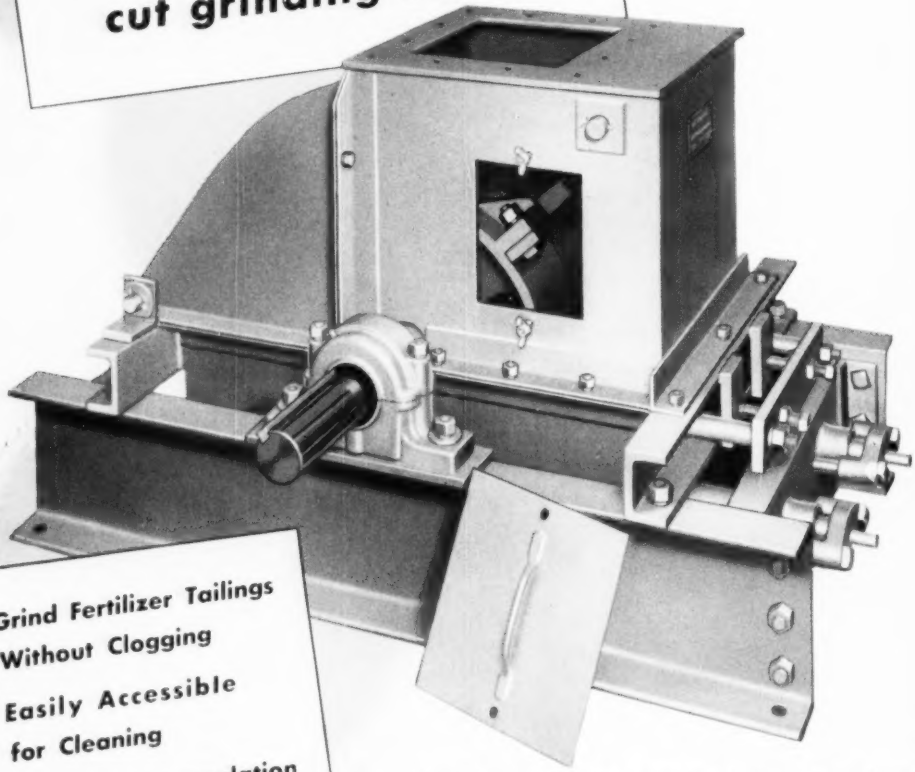
*Name*_____

*Company*_____

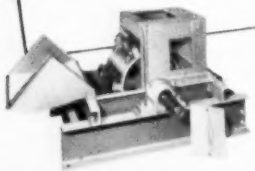
*Address*_____

*City*_____ *Zone*_____ *State*_____

STURTEVANT
ROTARY PULVERIZERS
Increase Output
of Fertilizer Tailings...
cut grinding costs!



- Grind Fertilizer Tailings Without Clogging
- Easily Accessible for Cleaning
- No Daily Accumulation of Unground Tailings



OPEN DOOR accessibility through drop door and hand holes makes cleaning fast and easy.

Here's a rotary pulverizer for grinding fertilizer tailings that will cut costs and increase tailings output.

The rigid rotating bars smash lumpy tailings against an adjustable breaker plate. These same rotating bars then rub oversize pieces against the plate assuring complete grinding of the tailings. Relief springs prevent stoppage, and a discharge free from restrictive grates eliminates clogging. There is *no* accumulation of unground raw hard pellets. The Sturtevant Rotary Pulverizer is superior to hammer mills because the hammers often stick . . . or cage mills that will not grind small pellets . . . or knives that only slice or shear. It can be used when basing, shipping superphosphate or complete goods. Capacities up to 35 tons per hour of tailings.

Many Sturtevant Rotary Pulverizers were sent out on trial . . . every one was bought . . . *none returned*. Most initial sales have resulted in repeat orders. Write for information today.

STURTEVANT MILL COMPANY

111 CLAYTON STREET, BOSTON 22, MASSACHUSETTS

Designers and Manufacturers of CRUSHERS • GRINDERS • SEPARATORS
CONVEYORS • MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

EMPHASIS ON QUALITY

Backed by over eighty-five years of chemical experience, the AA QUALITY Seal stands for highest quality and uniformity. Factory locations in or near principal consuming markets assure prompt, dependable service for the complete line of products, listed below.

FERTILIZER AND FERTILIZER MATERIALS

AGRICO® —The Nation's Leading Fertilizer
AA QUALITY® Fertilizers
18% NORMAL® Superphosphate
SUPERPHOSPHATE
PHOSPHATE ROCK—Florida Land Pebble
AGRINITE® —the organic Plant Food
AA QUALITY® Ground Phosphate Rock

INSECTICIDES AND FUNGICIDES

DRY LEAD ARSENATE
CALCIUM ARSENATE
BORDEAUX MIXTURE
DEROX 0.75% Rotenone
NICOTINE PYROX® —garden spray
PYROX® —with Arsenical—no nicotine
POTATO POWDER No. 1
PHOSPHODUST® —Diluent for dusts

PHOSPHORIC ACID AND PHOSPHATES

PHOSPHORIC ACID
DISODIUM PHOSPHATE
TRISODIUM PHOSPHATE
DICALCIUM PHOSPHATE
MONOCALCIUM PHOSPHATE
PHOS-FEED® —Calcium Phosphate Mineral Mixture

PHOSPHORUS AND COMPOUNDS OF PHOSPHORUS

ELEMENTAL PHOSPHORUS—Yellow White
PHOSPHORUS RED (Amorphous)
PHOSPHORUS PENTASULPHIDE
PHOSPHORUS SESQUISULPHIDE
FERRO PHOSPHORUS (Iron Phosphide)
SLAG

HYDROFLUOSILICIC ACID AND FLUOSILICATES

HYDROFLUOSILICIC ACID
AMMONIUM FLUOSILICATE
MAGNESIUM FLUOSILICATE
POTASSIUM FLUOSILICATE
SODIUM FLUOSILICATE
ZINC FLUOSILICATE
FLUOSILICATE MIXTURE

KEYSTONE® GELATIN — Edible, Photographic, Pharmaceutical, Technical

BONE PRODUCTS

ANIMAL BONE CHARCOAL
BONE BLACK PIGMENT (COSMIC®)
BLACKS
BONE ASH
BONE OIL
PRECIPITATED BONE PHOSPHATE

KEYSTONE® AMMONIUM CARBONATE U.S.P.

SALT CAKE

SULPHURIC ACID

® Reg. U.S. Pat. Off. © Copyrighted

The AMERICAN AGRICULTURAL CHEMICAL Co.

General Office: 50 Church Street, New York 7, N.Y.

FACTORIES

Alexandria, Va.
Baltimore, Md.
Buffalo, N. Y.
Carteret, N. J.
Cayce, S. C.
Chambly Canton, Quebec, Canada
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
Fulton, Ill.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Montgomery, Ala.
Nat. Stockyards, Ill.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Searsport, Maine
South Amboy, N. J.
Spartanburg, S. C.

SALES OFFICES

Alexandria, Va.
Baltimore, Md.
Buffalo, N. Y.
Carteret, N. J.
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Clinton, Iowa
Columbia, S. C.
Detroit, Mich.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Houlton, Me.
Laurel, Miss.
Montgomery, Ala.
Montreal, Quebec, Can.
National Stockyards, Ill.
New York, N. Y.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Spartanburg, S. C.

JUST AROUND THE CORNER

By Vernon Mount

Suppose Korea ended tomorrow, what would happen?

Economically, no difference. Korea is just the symptom of a much larger pain. Korea is just a feeler-outer and a kindly warning from Joe Stalin that we'd better be all set for the real thing.

So we'll go all-out militarily. We'll build up a big military establishment. We'll develop all sorts of light and heavy weapons. And we'll be pulling in the workers and the raw materials for war production for a long time to come.

Joe Stalin is waiting. If we keep up a big and tough army, he'll go on waiting. When he thinks we're weak, he'll strike. So we must be rough and ready, and keep on that way.

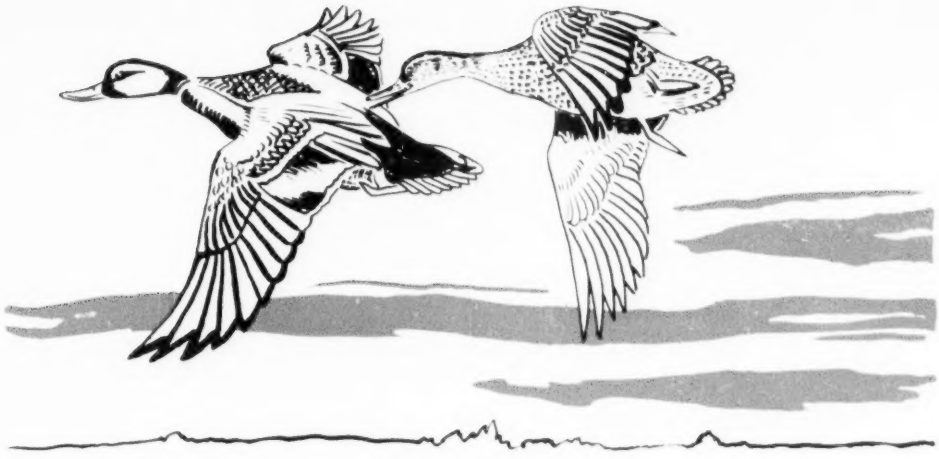
Inflation will bring controls, and inflation is on us. Election is not far off, after which wage-and-price control can be exercised without too many political repercussions.

But wages will rise before that. The unions are hard at it, right now, getting their licks in before the controls go on. And you know, with a Presidential election in the offing, how little likelihood there will be of wage rollbacks.

I've been saying all this a long, long time. It was all just as inevitable as the rising of the sun. I hope you have planned for it, and are ready.

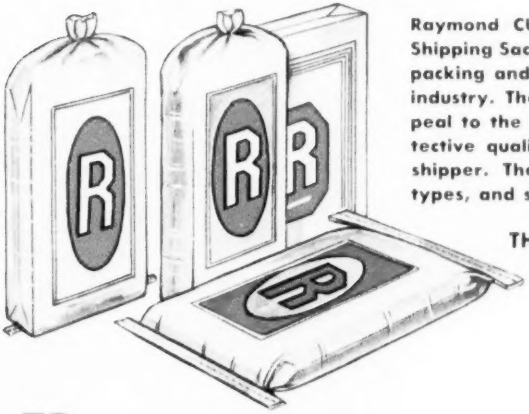
Yours faithfully,

Vernon Mount



The ducks are flying southward . . . a sure sign
that another farming season is coming to a close

It's time to start planning now to rebuild your land with good commercial fertilizers for next year's crops. Buy a quality fertilizer. A fertilizer that is packed in a quality shipping sack. A quality shipping sack is your guarantee that the fertilizer within retains all its strength and growing qualities.



Raymond CUSTOM BUILT Multi-Wall Paper Shipping Sacks are recognized as the quality packing and shipping sacks in the fertilizer industry. Their bright, attractive labels appeal to the buyer. Their strength and protective qualities appeal to the packer and shipper. They are made in various sizes, types, and strengths—printed or plain.

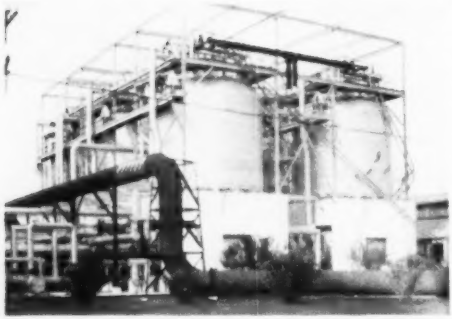
THE RAYMOND BAG COMPANY
MIDDLETOWN, OHIO

RAYMOND *MULTI-WALL*
PAPER SHIPPING SACKS

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

***SUPERHEATED WATER . . .** Mining operations are most successfully carried out if the water pumped into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.



To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

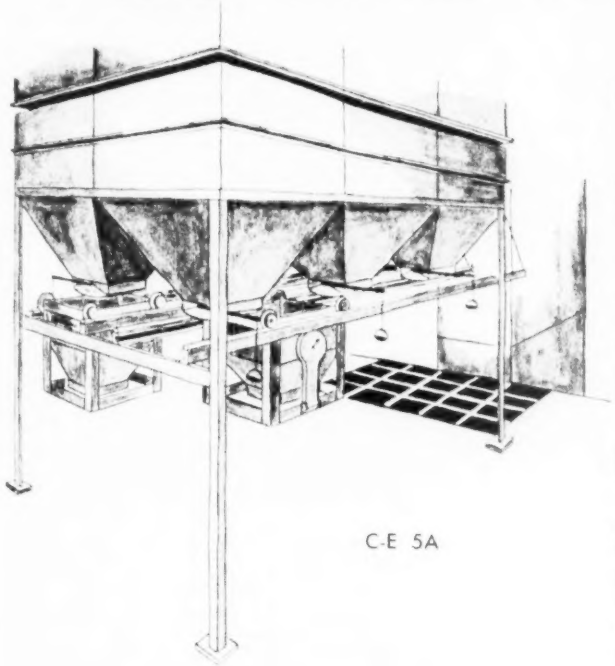
Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.

TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

YOU can do what Buhner DID!



C-E 5A

BUHNER FERTILIZER CO.
Danville, Illinois

SAVED 60c A TON! from previous costs,

THE FIRST NIGHT of operation of his C-E System.

WITH AN INEXPERIENCED CREW!

And Averaged 45 Tons per hour. 9 tons per man per hour! We have always promised you C-E Hopper systems will pay for themselves, and from the start!

Buhner Fertilizer Co. operates the C-E Model 5A Illustrated here.

Electrically Driven! Simple 2-Man Weighing!
No Shovels! No Carts! Less Labor!
Low Investment, Low Cost, Greater Accuracy and Easier on the Men!

THIS C-E SYSTEM

COSTS LESS THAN $10,000, f. o. b. GREENBAY, WISCONSIN

Our Book "The Picture Has Changed" is Free, Write For It!

Chemical Engineering Service, Inc.

GREEN BAY, WISCONSIN

There's Plus Value in COTTON BAGS

Farmers don't overlook the fact that in buying a ton of fertilizer in 100 lb. COTTON BAGS, they get more than 20 yards of good cotton cloth to be used in money-saving ways in the home.

Millions of farm women sew . . . make attractive clothing and home furnishings . . . with cotton bags.

Additional advantages of Cotton Bags, which are of value to YOU as well as your farmer customers, are that Cotton Bags are easier to handle, haul and store . . . are less subject to waste from snags or tears.

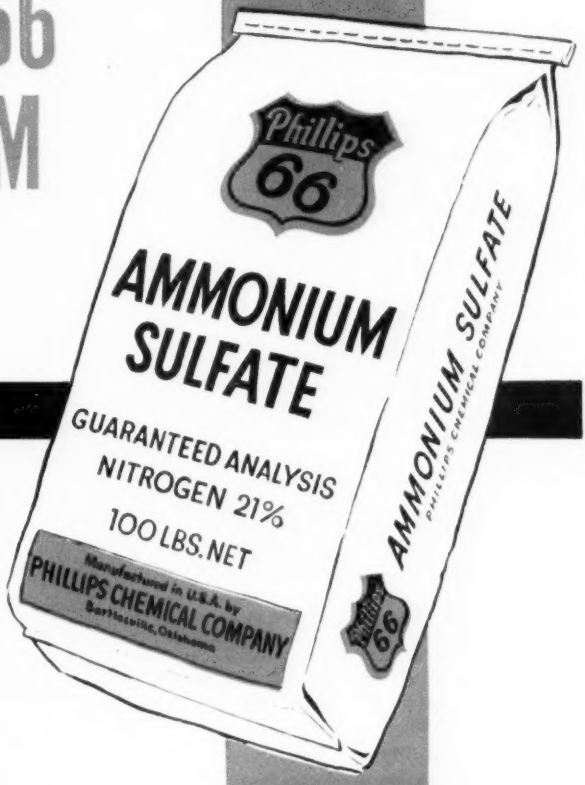
As a headliner for your fertilizer sales promotion, Cotton Bags of Fulton Quality Sheeting, Osnaburg and Toweling will be star performers for you. Your nearest Fulton branch will be glad to work with you. Call on us.

Fulton BAG & COTTON MILLS

Atlanta • New Orleans • Dallas • St. Louis • Kansas City, Kans.
Minneapolis • Denver • Los Angeles • New York City

AVAILABLE NOW FOR DIRECT APPLICATION

PHILLIPS 66 AMMONIUM SULFATE!



NITROGEN 21%

Here's a high nitrogen fertilizer that's available now for direct application. It's a quality product, too, with fine physical characteristics. The large crystals of Phillips 66 Ammonium Sulfate resist caking... flow freely... drill efficiently.

Tonnage quantities of Phillips 66 Ammonium Sulfate are ready for shipment in bags or in bulk.

Contact our nearest district office for full information.

Phillips 66

PHILLIPS CHEMICAL COMPANY

A Subsidiary of Phillips Petroleum Company

FERTILIZER SALES DIVISION • BARTLESVILLE, OKLA.

DISTRICT SALES OFFICES:

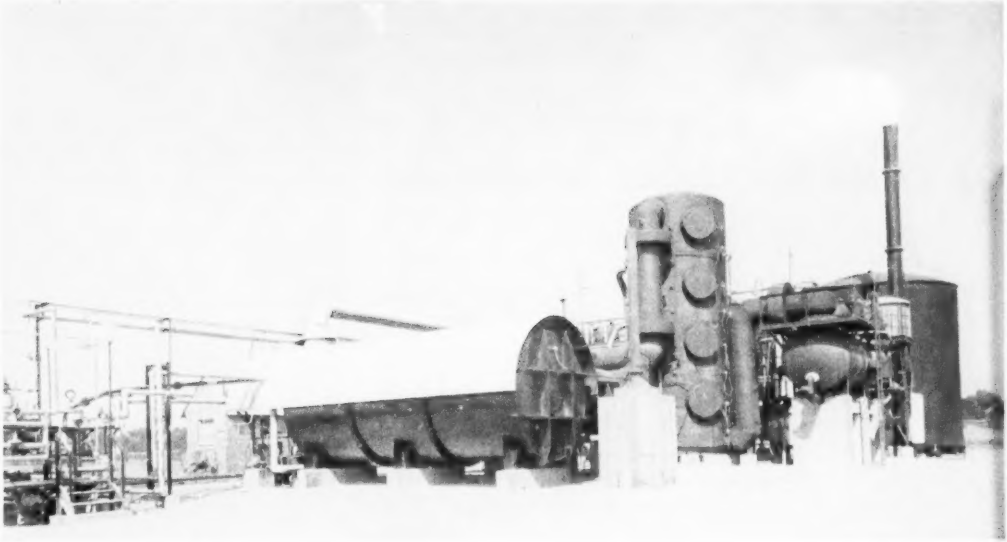
NORFOLK	TAMPA	HOUSTON
610-612 Royster Bldg.	305 Morgan Street	423 Commerce Bldg. Addition
OMAHA	LOS ANGELES	AMARILLO
WOW Building	4521 Produce Plaza West	First National Bank Bldg.

AMMONIUM SULFATE • AMMONIUM NITRATE • NITROGEN SOLUTIONS • ANHYDROUS AMMONIA

First New-Type

CHEMICO SULFURIC ACID PLANT

now in operation



The first plant, utilizing Chemico's new process for making sulfuric acid from sulfur, is now in successful operation at the Hamilton, Ohio works of the American Cyanamid Company. This new unit—rated at 50 tons per day can deliver sulfuric acid of any strength up to 95% H_2SO_4.

This new-type Chemico plant is basically simpler than conventional type contact sulfuric acid plants. The new process differs in these basic ways.

• It converts SO_2 to SO_3 in a highly efficient quench converter. This eliminates heat exchangers . . . assures higher yield from raw sulfur . . . virtually eliminates contamination due to unconverted SO_2.

• From the converter, the SO_3 gas mixture passes through a multiple dip-pipe absorption system, which operates by gravity flow. There is no need to distribute acid over packed absorbing towers.

• Water evaporation from absorber acid solutions removes heat of absorption and the sensible heat of hot gases. Only a small amount of cooling water is required for the product acid before storage.

• A built-in Pease-Anthony Venturi Scrubber insures mist elimination in the exhaust stack.

• Seven major items of equipment — usually found in present-type contact acid plants — have been eliminated: drying tower, gas filter, heat exchanger, SO_3 cooler, acid coolers, acid circulating and transfer pumps and diluting equipment.

THE RESULTS — The new-type plant is much smaller. It can be economically built and operated. Investment cost is lower per ton of capacity. Startup, shutdown and operation are easier.

CC 207

CHEMICAL CONSTRUCTION CORPORATION

A UNIT OF AMERICAN CYANAMID COMPANY

488 MADISON AVENUE, NEW YORK 22, NEW YORK

EUROPEAN TECHNICAL REPRESENTATIVE

CYANAMID PRODUCTS, LTD., LONDON W.C.2, ENGLAND • CABLES: CHEMICONST, NEW YORK

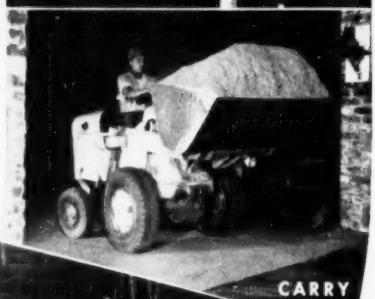
Chemico plants are profitable investments

Pick PAYLOADERS

FOR THE *BULK* OF YOUR MATERIAL HANDLING

Payloaders are a proven, successful bulk-material-handling system in hundreds of fertilizer and chemical plants . . . are handling and rehandling loose materials fast and cheaply. They eliminate many slow, laborious and costly operations . . . save time and labor and boost production.

Large pneumatic tires, short wheel bases and multiple speeds in both directions provide traction and maneuverability on or off hard floors, up ramps, through doorways and narrow aisles. It will pay *you* to find out how Payloaders can slash *your* material handling costs. See your Hough Distributor or write The Frank G. Hough Co., 702 Sunnyside Ave., Libertyville, Ill.



Send for catalogs on any size Payloader: the 12 cu. ft. Model HA; the ¾ yd. HF; the 1¼ yd. HL; the 1½ yd. HM. There is no obligation.

HOUGH PAYLOADER

Manufactured by THE FRANK G. HOUGH CO.

TVA Distributes Via the Industry

TVA announces it has joined in an experimental undertaking with certain segments of the private fertilizer industry. Fertilizers manufactured by TVA at its experimental plants at Wilson Dam, Alabama, are being, or soon wil be, distributed to farmers through a few private companies from which TVA will secure information on distribution costs and practices to supplement that presently being obtained from farmer cooperatives.

Six companies have been selected to carry out the experiment during the present fiscal year. They are:

Summers Fertilizer Company, Baltimore, Maryand; Sylacauga Fertilizer Company, Inc., Sylacauga, Alabama; Epting Distributing Company, Leesville, South Carolina; Knoxville Fertilizer Company, Knoxville, Tennessee; Capital Fertilizer Company, Montgomery, Alabama; Pocahontas Fertilizer Company, Pocahontas, Iowa.

These companies were selected from a number of applicants on the basis of certain criteria including ability and willingness to promote TVA objectives with respect to use of its fertilizers, geographic area served, type of organization and method of distribution.

TVA experimentally manufacture highly concentrated phosphate and nitrogen fertilizers. Under the contracts entered into between TVA and the companies, the companies purchase the fertilizers from TVA and retail them to farmers or sell them to their established dealers who in turn sell to farmers.

Contracts between TVA and the companies are generally similar to those now in effect between TVA and cooperatives distributing TVA fertilizers. The distributors agree to keep a supply of the fertilizers for sale unmixed with other materials and to use the remaining fertilizers only in high-analysis mixtures. They also agree to furnish TVA with records of the costs of handling and distributing both TVA materials and comparable materials obtained from other sources.

The companies agree to cooperate closely with agricultural colleges of the states in which they operate and to assign qualified personnel to help their farmer customers carry out the recommendations of the colleges with respect to sound use of these fertilizers.

It Seems to Me

by BRUCE MORAN

A fascinating thought has been injected into the problem of educating the farmer. As we go into a war period, when all the crops we can make may be needed for civilian and military use, it is a point worth noting well.

The idea was contained in a talk made recently at a field day by H. H. Finnell, superintendent of the Panhandle Experiment Station, Oklahoma.

Said he: "The effect of lost fertility has been masked by improved yields due to better varieties and better tillage. The 7-bushel loss due to lowered fertility has been balanced by a 7-bushel increase due to new, higher-yielding wheats and the better cultivation possible with power equipment."

The moral, of course, is to take a good look at the figures in your own markets, analyze how much of increase may be due to the causes Mr. Finnell mentions, and how much is truly due to fertilizer use. And when you know the answer, tell your salesmen and your dealers, so they can spread the word to the farmers who may not be using all the fertilizer they should.

We need the crops too much to overlook any clue as important as this one seems to be.

NOTES FROM EUROPEAN FIELDS

SPECIAL TO COMMERCIAL FERTILIZER

By Charles E. Kellogg
Chief, Division of Soil Survey, U. S. Department of Agriculture

Breda, The Netherlands, August 12

The Dutch soil scientists carried out an exceedingly well-planned tour of their country following the Fourth International Congress of Soil Science ending August 1.

Throughout the country one is continually amazed at the rich agriculture from soil literally made by drainage, diking, fertilizing, and good husbandry. So much has been made from an abundance of water, a great deal of sweat, and only a little earth! The polders are outstanding achievements of engineering, soil science, administration, and good husbandry, all combined. We were shown very old ones, new ones, others under construction, and some being remade after wartime flooding with sea water.

Further increases in efficiency in many of the old agricultural communities depend upon consolidation of the tiny parcels resulting from ancient divisions and subsequent splitting by inheritance into convenient economic units. Already projects are under way for re-allotment based primarily upon detailed soil maps and plans for improved drainage and road systems. These programs are vitally needed, but must be carried forward very carefully under law with full discussion and consultation among owners and tenants so that all are treated fairly in the final readjustments.

Fertilizer use is very high in the Netherlands—perhaps the highest in the world for special crops grown with intensive control of the ground water. Tomatoes, peaches, grapes, and a few other crops are grown in glass houses built over the field in soil in which the crops are rooted. But cereals, sugar beets, and meadows also receive high rates of fertilization. Rates go up to 400 pounds of nitrogen per acre, 600 pounds of P_2O_5, and 600 pounds of K_2O, and higher. An intensive fruit and vegetable farm of 7 to 8 acres, half under glass, may represent an investment of nearly two million guilders or about three-quarter million dollars.

The intensive horticultural development is very closely related to soil conditions. One can see why such farmers are especially aware of soil differences and enthusiastic users of soil maps. Only a few inches variation in the depth to which the water table may be controlled determines success or failure. Many crops as well as grass are grown in the Netherlands on soils that would be regarded in the United States as too shallow over the water table. But the essential point is its control. If the water table is near the soil surface for part of the time and deep part of the time, the Dutch farmer doesn't want the land; but it can be quite near the surface and many crops grown successfully if it is maintained at a constant level. The extent to which they have been able to control it with canals and tile for both drainage and subirrigation is remarkable.

Important areas of sandy soils have been made productive by removing the sand from high areas and spreading it on the low ones. Some soils have been cut down as much as 20 feet and others built up two or three feet. Many other examples of man-made soils may be seen. In tidal flats near the sea, ditches are dug to catch the silt brought in by the tides which is then thrown up in beds (like the age-old practice of warping in eastern England). Elsewhere the land was treated for centuries with manure composted with heather sod containing fine sand. Now the arable land has a dark-colored surface soil some 18 to 24 inches deep instead of only four or five.

Through their recent researches, Prof. Dr. C. H. Edelman and his associates in the Netherlands Soil Survey have worked out the genesis of many of the productive arable soils

that have been drastically altered through various methods of this sort since before Roman times down to the present day.

The reclamation of Walcheren Island, flooded by sea water during the liberation in 1944-45, is an outstanding demonstration of applied soil science. Re-allotment, improved drainage, removal of salts, rebuilding of roads and houses, and all the rest are going forward together. It is a big job, but the soil of Walcheren Island, much of it below sea level, will undoubtedly soon be producing more than ever before.

Now one sees in the Netherlands a beautiful, well-ordered agricultural country. Most of it has been built up by the people themselves from marshland, tidal flats, sandy heather Podzols, sand dunes, and river beds. Should one estimate potential world food production on the basis of what the Dutch engineers and agriculturists have done, the figures would be astronomical beyond conception. Has it been economic? No one can tell. By the usual method of calculating costs and returns, certainly not (even after allowing generous "multiplier factors" for the benefits to those who serve agricultural people). That is, one may get the cost figures, the man-work days, and the production and show easily that the work has all been uneconomical. But still there are the beautiful soils, the efficient farms, the pretty villages, and a thriving nation of some 10 million people.

Brussels, Belgium, August 20

Following the Fourth International Congress of Soil Science and the excursion in Holland, a week's tour in their country was arranged by the Belgian soil scientists. Since the polders in Belgium are like those in Holland, the tour was planned for the uplands, especially the sandy plains near Ghent and the rolling lands covered with loess east and southeast of Brussels.

These upland soils from loess resemble some of the light-colored soils from loess in the general region common to Illinois, Iowa, Minnesota, and Wisconsin. But in Belgium one does not find the soils with claypans in the nearly flat uplands.

In many ways besides position, Belgium is intermediate between the Netherlands and France. Part of the soils are very like those in the Netherlands and the soil survey staffs of the two countries work closely together for their classification and interpretation. The "loessial loams" are similar to those of northern France in the vicinity of Paris and north. Part of the people speak French and part Flemish or Dutch. Some of the living ways suggest Netherlands, and others France. But Belgium is by no means simply an "intermediate" country. It has its own cultural pattern.

Dr. Kellogg

Much of the farming in Belgium is still traditional. In some areas, for example, farmers have used lime for a long, long time and in fact use a bit too much now. In other villages, too little lime is used. Fertilizer use and cropping systems in some villages are similarly related to history. Although good reasons can be found in the past for many of the existing systems, often these are no longer valid.

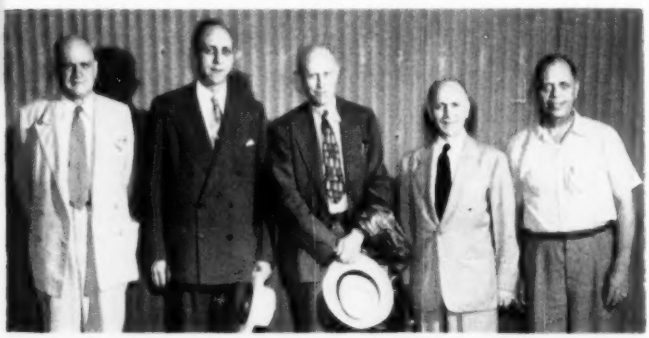
The re-allotment of the many tiny separate parcels under individual management into single consolidated farms is, perhaps, the most pressing agricultural need in Belgium. Highly intricate patterns in many parts of the country have grown up from ancient times, reflecting medieval village rights, various sorts of divisions, and subsequent splitting by inheritance. Although there are important local exceptions, most Belgian farmers live in villages and go out to their scattered parcels. These are difficult to fence and to get at. Many are too small for using machinery most effectively. Some of the soils from loess, for example, are now used for wheat with good yields; yet they would produce even more under efficient mixed farming.

Until fairly recent years, only a little soil research had been

done in Belgium and that mostly at Louvain. Now work is going forward at Ghent and Gembloux as well. The soil survey is cooperative among the three centers under financial support from IRSIA (Institut pour l' Encouragement de la Recherche Scientific dans l' Industrie et l'Agricultur) and with the technical guidance of Prof. R. Tavernier, Professor at Ghent and the new president of the International Society of Soil Science. Although only begun recently, the work is proceeding very well indeed. As in the Netherlands, soil classification in Belgium needs to be highly detailed and to take full account of soil characteristics due to long use as well as to the purely "natural" characteristics.

In the loessial area, the Belgian soil scientists showed some very interesting results of their research—soil types produced through modification of the natural soil by geomorphological processes, including very gradual accelerated erosion, stimulated by cultivation, and by other processes related to very long use of the land.

Besides the recent emphasis given soil research in Belgium itself, a large expansion is going forward in the Belgian Congo under INEAC (Institut Nacional pour l' Etude Agronomique du Congo Belge). The Director General, F. Jurion, is also vice-president of the Society and will have the chief responsibility for organizing the Fifth International Congress of Soil Science, scheduled for 1954 in Leopoldville. INEAC has some 26 experimental stations in the Congo. Some initial soil surveys have been made. Three extensive ones are planned for the immediate future with a corresponding expansion of correlative laboratory and field research. Additional staff members are coming to the United States for advanced study and some opportunity will likely develop for American soil scientists to work in the Congo. The main station at Yangambi was recently chosen as the central headquarters for cooperation in soil science research among the British, French, Portuguese, and Belgians working in Africa below the Sahara.



Among the 30 leading soil scientists who visited the Curtis Bay Works of The Davison Chemical Corporation on August 24, 1950, were (Left to right): George Callister, Food Agriculture Organization, United Nations; Maurice H. Lockwood, V.P., International Minerals and Chemicals Corp.; Kenneth D. Jacob, Head Div. of Fertilizer and Agricultural Lime, Agricultural Engineering, U.S.D.A.; Vincent Sauchelli, Director, Agricultural Research, The Davison Chemical Corporation; Dr. Joseph F. Fudge, State Chemist, Texas Agricultural Experiment Station.

Harpenden, England, August 27

Perhaps the basic question of soil use in Britain is the broad one: How much can and should British agriculture compete with that overseas? The industrial system has grown up over the long years with cheap food. In varying degree, the imported food has been cheap because of (1) cheap labor, (2) quick soil exploitation, or (3) greater efficiency, or of some combination of these three. Britain cannot meet the first two of these: she needs to have prosperous farmers and well-paid agricultural labor, and she needs to keep her soil productive. British farmers are trying to meet the efficiency, and can. But the demands for efficiency conflict with old customs and living ways—small fields surrounded by hedges, stone fences, and the leisurely habits of the old sporting country gentlemen.

Yet even with efficiency, fair incomes to farmers and farm laborers mean either increased food prices or subsidies to agriculture. Otherwise farmers will decrease their production, do other more rewarding work, imports will need to increase; and the food production potential to meet a possible wartime crisis decrease.

The government needs to decide this balance between price increases and subsidies in the whole national interest, and how to set subsidies fairly with-

(Continued on page 54)

Fertile pasture makes a BIG difference

when farmers use your fertilizers containing International Potash

Profit-wise farmers are using increasing quantities of fertilizer to produce thick, high-quality stands of legumes and grasses to provide livestock with abundant, money-saving, nutritious forage. And to help build up the fertility of the soil for healthy growth of cultivated crops in the rotation.

To satisfy the demands of your farm customers for quality pasture fertilizer, use *International Potash*. When pastures show evidence of magnesia deficiency, recommend to your farm customers the use of fertilizer containing *Sul-Po-Mag*.

By using *International Potash* and *Sul-Po-Mag*, you can give your customers the quality fertilizers they want, and in the smooth-flowing mechanical condition that is so important for efficient, easy, low-cost drilling.

International Potash is mined and refined by *International* at Carlsbad, New Mexico, and is available, in the grades you need, in larger tonnages than ever before.

SUL-PO-MAG (Water-Soluble Double Sulfate of Potash-Magnesia)
MURIATE OF POTASH • SULFATE OF POTASH

Sul-Po-Mag
Water-Soluble
Double Sulfate of Potash-Magnesia

INTERNATIONAL POTASH

POTASH DIVISION — **INTERNATIONAL MINERALS & CHEMICAL COPPORATION**

General Offices: 20 North Wacker Drive, Chicago 6

WORLD-WIDE FERTILIZER REPORT

Issued by the
Food and Agriculture
Organization
of the
United Nations
Washington, D. C., U. S. A.

This report has been prepared by the FAO Distribution Division, Fertilizer Section. It is based on data available up to 15 July 1950. Statistics comparable to those in the Appendix, but for an earlier period, will be found in FAO Commodity Bulletin No. 17, **Commercial Fertilizers,** September 1949.

Nitrogen (inorganic nitrogenous fertilizers, cyanamide, urea, some guano, and a very small amount of natural organic fertilizers), phosphoric acid, and potash are stated in terms of metric tons of N, P_2O_5, and K_2O. Data on production and consumption of phosphoric acid include all grades of superphosphate, basic slag, and other phosphatic materials, except ground phosphate rock. World estimates for nitrogen, phosphoric acid, and potash exclude the U.S.S.R.

The following symbols are used in the tables.

* Unofficial figures
\- None or negligible
... Data not available
() Not included in total
DOT Dependent Overseas Territories.

* * *

The present is an important period of transition in the world production and consumption of commercial fertilizers. For the first time since the war, world supplies of most fertilizer materials are now sufficient to meet effective world demand. Because countries can now plan crop production programs on a broader base of available fertilizer supply, their agronomic needs can be better satisfied. While, however, shortage of supply is no longer a major factor in limiting the expansion of fertilizer consumption, other factors are exerting an adverse influence in some countries.

1949-50 Situation: At the end of the fertilizer year 30 June 1950, estimated world production and consumption (excluding the U.S.S.R.) of commercial plant nutrients reached record totals of 12.7 and 12.4 million metric tons respectively. Of the total production, nitrogen comprised 3.7 million tons N, phosphoric acid 5.3 million tons P_2O_5, and potash 3.7 million tons K_2O. With its very active recovery and expansion program, Europe has become once more the dominant continental producer and consumer of commercial fertilizers, accounting for more than half the world total and the bulk of the 1949-50 increase over 1948-49.

1950-51 Outlook: On the basis of data submitted by governments in May-June 1950, production and consumption of commercial fertilizers in 1950-51 are estimated to increase by about seven percent each over 1949-50. As these data were submitted before the disturbed conditions in Korea, they are therefore subject to change with subsequent developments. According to present estimates and programs, nitrogen and phosphoric acid show a statistical balance for 1950-51, with supply and effective demand at about the level of 3.9 million tons N and 5.6 million tons P_2O_5. Because no official data are available for the production and consumption of substantial potash tonnages in Europe, a far greater degree of estimation is necessary. Estimates based on the best information available at this time indicate that world production will be 4.1 million tons K_2O and consumption 3.9 millions tons.

World Trends In Production And Consumption

Estimates for the production and consumption of all plant nutrients (nitrogen, phosphoric acid, and potash) by continents for the years 1948-49 to 1950-51 are shown.

During this period the largest increase in total production appears in Europe, with potash and nitrogen increasing more than 30 percent and phosphoric acid by 13 percent. In Asia, 1950-51 phosphoric acid and nitrogen production are expected to

Table 1. — Fertilizer Production and Consumption, 1948/49, 1949/50, and 1950/51 (in terms of total plant nutrients)

Continent	Production			Consumption		
	1948/49	1949/50a/	1950/51b	1948/49	1949/50a/	1950/51b
	Thousand metric tons N, P_2O_5 and K_2O					
Europe	6,193	7,078	7,790	5,791	6,418	7,124
N. and C. America	4,105	4,061	4,036	3,868	3,828	3,962
S. America	350	359	388	150	163	184
Asia	486	631	708	930	1,186	1,287
Africa	108	126	139	236	282	309
Oceania	455	492	532	482	537	581
Total c	11,698	12,746	13,593	11,457	12,414	13,446

NOTE: Detailed figures are given in the Appendix. Consumption figures are generally those calculated "as available to farmers" and do not include changes in stocks.

a/ Preliminary.
b/ Outlook.
c/ Total may differ from sums, due to rounding.

be 56 and 37 percent greater than in 1948-49. Increases in South America, Africa, and Oceania reflect primarily expansion in the production of phosphoric acid. Despite the closing of the U. S. Army Ordnance plants at the end of 1949-50, total production in North and Central America during this period remains at about the same record level already achieved in 1948-49.

An increase in consumption of all commercial fertilizers is shown for each continent during this period. In Asia, increases of 54 and 47 percent above the 1948-49 consumption of nitrogen and phosphoric acid more than offset a decrease in potash consumption. The increase of 21 percent in the total consumption in Oceania includes gains of 65 and 112 percent on the relatively small tonnages of nitrogen and potash. Consumption in Europe is expected to increase by more than 25 percent for nitrogen and potash and 14 percent for phosphoric acid. The largest relative increase in Africa is in nitrogen and in South America, in phosphoric acid. In contrast, consumption in North and Central America shows very little increase during the period, as a very high level had already been reached by 1948-49.

Factors Affecting World Consumption: Factors other than supply are causing a slowing down of demand for all fertilizers. Less favorable relationships in some areas between agricultural and fertilizer prices are an important adverse influence. The inability to finance purchases because of monetary and financial considerations has kept some countries from fully meeting their import requirements. It is expected that during 1950-51 such factors will tend to exert more influence than will agronomic needs or the status of the world's supply on the amount of commercial fertilizers consumed.

While the world outlook for 1950-51 is for an approximate balance between supply and effective demand, the plant nutrient supply available in many countries is still inadequate to meet the needs of desirable crop and food production. At the same time, available plant capacity in some areas could produce larger tonnages of fertilizers if required. The determination of conditions under which the use of commercial fertilizers may be profitable, especially in the more underdeveloped countries, and the wider dissemination of such knowledge are two of the most important factors in the profitable use of the more abundant world supply.

NITROGEN

Current Situation and Outlook: At the end of the fertilizer year 1949-50, the total estimated production of nitrogen (N) was generally moved out or contracted for. No serious shortages or surpluses were reported during the year, although in a few countries there were increases in carry-over stocks. On the basis of data submitted by governments, chiefly in April and May 1950, both the production and consumption trends of nitrogen in 1950-51 are still upward, although the rate is slower than in previous years, and estimated world production and consumption for 1950-51 are approximately in balance. This apparent balance in supply and demand could be upset if either the estimated production is increased at a rate greater than indicated or consumption does not come up to expectations. Current estimates for 1950-51 are, on the whole, more conservative than similar estimates given in previous FAO publications.

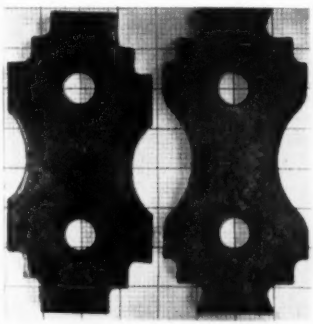
The removal of international allocations as of 30 June 1949 was followed in many countries by the relaxation of restrictions on trade as supplies increased relative to demand. Increases in 1949-50 were not so marked as had been anticipated a year earlier.

Shortage of world supply is no longer a limiting factor in the expansion of nitrogen consumption. Other factors caused a somewhat lower demand than had been anticipated. Important among these are less favorable relationships between agricultural and fertilizer prices and the inability to finance imports. On the other hand, in countries with favorable relationships between agricultural and fertilizer prices, demand remained high.

Reported prices during 1949-50 showed relatively little change. In the United States of America no price changes were reported during the year except for a substantial reduction in the price of ammonium sulphate which occurred in May and June. Prices of Chilean nitrate were reported as maintained during the year without change in either U. S. or U. K. markets. In the United Kingdom, where fertilizer prices were controlled and subsidized by the government, prices to distributors were at the same level as a year earlier except for some minor increases at the end of the season because of changes in freight rates.

The postwar tendency towards self-sufficiency in supply in many countries continues, while at the same time some exporting countries are expanding their capacity.

Production and Consumption, 1949-50: Total **production** of nitrogen, while somewhat lower than was anticipated a year ago, was 3.7 million metric tons N for 1949-50 as compared with 3.3 and 2.6 million tons in 1948-49 and 1938-39 respectively. Substantial increases, amounting to 17 and 26 percent above the previous year, occurred in Europe and Asia respectively,



Here is a hammer chart, offered owners of Jay Bee Hammer Mills by the J. B. Sedberry Company, Franklin, Tennessee. The charts are actual hammer sizes in the original (the cut having been reduced somewhat to fit our column size). On the right is a standard Jay Bee Hammer. On the left a home made one. You can lay your hammer on the chart and see if it is fit to do its job. The chart is free. Just write the company for it and keep your mill performing right by checking your hammers frequently for balance.

which now surpass prewar production. Production in the Western Hemisphere increased about 6 percent.

The increase of 263,000 metric tons N in Europe, owing primarily to the gains over 1948-49 in Germany, Norway, The Netherlands, and Italy, made that continent, in spite of growing consumption, a net exporter for the first time since the war. Japanese production increased more than 25 percent during the year and now more than compensates for the low level of production in North Korea. Relatively small increases above a year ago were reported in most of the other producing countries with the exception of the United Kingdom, Sweden, and India, where production was slightly less. The largest relative and actual gain in the consumption of commercial nitrogenous fertilizers was in Asia, where it was 46 percent above 1948-49. Consumption increased by 39 percent in Africa, 9 percent in Europe, 23 percent in Oceania, and 2 percent in North and South America. Ten countries reported increases of more than 30 percent during the year. Of these, only Norway and Japan produced either all or the bulk of its supply. Imports accounted for the large gains in Denmark, Portugal, Sweden, Taiwan, India, South Korea, Egypt, and New Zealand.

Western Germany was the only area reporting a substantial decrease in consumption—310,000 tons N as compared with 336,000 in 1948-49. In spite of larger indigenous supplies, farmers were unable to purcase their requirements because of lack of money. As a censequence, about 68,000 tons N remained unsold at the end of the season.

Outlook for 1950-51: Based on estimates made in May and June 1950, the outlook for 1950-51 world production and consumption of nitrogen is still upward although there are indications that the rate of expansion has slowed down and in some countries may even be curtailed. On the other hand, in many countries an expansion of production in 1950-51 of 10 percent or more above 1949-50 is planned. It is impossible to evaluate, at this time, the effect of the current disturbed conditions in Korea on the nitrogen situation. A prolonged conflict could not only curtail consumption in the Far East, where South Korea was the largest importer in 1949-50, but might also affect production programs of other countries. Either circumstance would change estimates and plans made earlier in the year.

According to present plans as reported by governments, production and consumption will be about 3.9 million metric tons nitrogen. The bulk of the increase is expected to be in Europe and Asia, with an important, though smaller, increase in production in Oceania and with expectations of an initial output from Africa. A prospective reduction in the production of the United States will more than offset the anticipated increase in the rest of the Western Hemisphere.

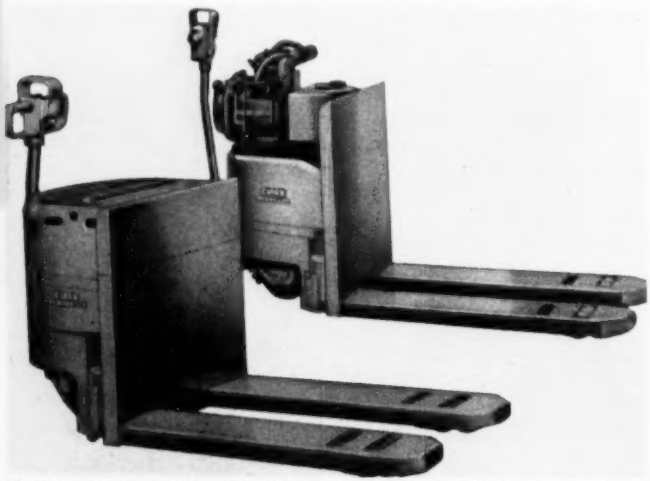
In Europe the most marked expansion programmed is the Netherlands and in Western Germany, in order to provide for greater domestic supplies as well as substantial exports. Austria and Norway are increasing their production, primarily for the export market, although other European net exporters, such as Belgium and the United Kingdom, do not report similar trends at this date.

In Asia the planned increases in both Japan and Taiwan, where new production units have recently been installed, are intended for home consumption. The same applies to increased production in Australia.

Production in Chile is expected to increase by 4 percent in 1950-51, owing in part to the more complete recovery of sodium and potassium nitrates from ores by means of solar evaporation.

Among the new producers it is expected that Mexico will be a net exporter in 1950-51. The nitrogen plants under construction in India and Egypt will have token shipments available and these will increase in volume by 30 June 1951. However, owing to many conditions difficult to evaluate, no estimate of production can be made at this time.

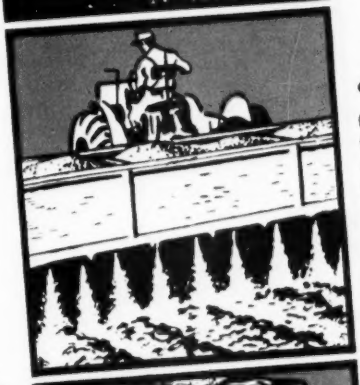
The only major reduction reported in 1950-51 is in the United States, where Army Ordnance plants which had been furnishing nitrogen for export during the period of short domestic supplies ceased operation



Clark Equipment Company, Industrial Truck Division, is offering a pair of new hand trucks of two power types, one battery-powered with motor drive; the other is gasoline engine-powered with hydraulic pump and motor drive. Details can be secured from Clark Equipment Company, Industrial Truck Division, Battle Creek, Mich.

DAVISON
GRANULATED SUPERPHOSPHATE
offers 3-Way Control

1. Davison Granulated Superphosphate stores without caking, in your warehouse, in the farmer's barn. That's storage control.



2. It pours freely in your plant and drills freely and evenly in the field with a minimum of dusting, without bridging and clogging. That's handling and application control.

3. Each granule has a hardened but porous surface, which releases plant food at a correct rate. That's food control.

Only Davison uses an exclusive finishing process that produces superphosphate in granules. Davison Granulated Superphosphate thus offers you a number of sales points that you can use to make your business grow.

Davison is a primary producer of superphosphates, mining its own phosphate rock, producing its own acid, scientifically controlling every step of the process. Thus you get quick delivery of the highest quality, either bulk or bagged. Price puts you in a favorable competitive position.

Progress through Chemistry

THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

EXCLUSIVE PRODUCERS OF GRANULATED, AND ONE OF THE OLDEST AND LARGEST PRODUCERS OF NORMAL GRADES OF SUPERPHOSPHATES

at the end of 1949-50. Closing out of the program is in accordance with the original policy of the Army to end its fertilizer-manufacturing activities when commercial facilities were in a position to supply the Army's needs without jeopardizing the supply to the American farmer. By 30 June 1950 both Japan and South Korea were expected to be able to fill their import requirements from commercial sources. Germany became self-sufficient in this respect approximately one year earlier.

Manufacture of nitrogenous fertilizer was initiated by the Army in October 1946, after it had been unable to obtain any considerable amount for use in occupied areas. It is now anticipated that private plants in the United States and abroad can fill any future needs the Army may have for nitrogenous fertilizer. United States production for 1950-51, including that of plants purchased or leased from the Army for commercial operation, is estimated now at 895,000 metric tons, about 155,000 metric tons less than the combined commercial and ordnance production a year ago. As a consequence, the United States is expected to become again a net importer of nitrogen for the first time since 1946-47.

The increase in world nitrogen consumption in 1950-51 is estimated to be about 9 percent above 1949-50, as compared with almost 14 percent a year earlier. Practically every country expects at least to maintain the present high levels. Consumption in Europe will rise relatively more than the average consumption in other continents, owing to substantial increases in a few countries —notably Denmark, Finland, Western Germany, Greece, Ireland, Italy, and The Netherlands. In other areas, South Korea, Australia, and Taiwan are the only countries anticipating a substantial gain in consumption.

International Trade: The total volume of nitrogenous fertilizers in international trade in 1950-51, in spite of the increase in world production, is expected to be about 95 percent of the amount shipped in 1949-50. Exports amounted to 30 percent of the 1949-50 production but will probably be less than 27 percent in 1950-51.

Table 2. — Foreign Trade in Nitrogenous Fertilizers 1949/50 and 1950/51

Continent	Preliminary 1949/50		Outlook 1950/51	
	Imports	Exports	Imports	Exports
		Thousand metric tons N		
Europe	329	393	319	464
N. and C. America	198	435	194	255
S. America	22	279	29	290
Asia	393	25	352	25
Africa	128	0	131	0
Oceania	8	0	11	0
Total	1,078	1,132	1,036	1,034

With the growing tendency toward self-sufficiency in supply, total anticipated imports into all countries will be somewhat smaller. On the other hand, exportable surpluses will also be lower because of the absence of United States Army Ordnance supplies.

In 1950-51, the continents with large net export surpluses will be South America and Europe. Chile, Canada, and Norway will be the largest single exporters, with about 27, 14, and 12 percent, respectively, of the total exportable surpluses. Belgium, Western Germany, and the United Kingdom will each account for about 7 percent of the total, and Austria for 5 percent. Exports from the United States, estimated at about 10 percent, will be considerably less than the imports for the same year. The Netherlands and Mexico are expected to be net exporters of a substantial portion of their production.

While imports of nitrogen in 1950-51, for most of the countries reporting, are estimated at a level approximately equal or greater than the 1949-50 level, these are not sufficient to offset the decreases which are the consequence of the approaching or realized self-sufficiency of the countries which have been major postwar importers. Compared with 1949-50, imports into Japan are expected to be 75,000 tons less, while consumption is maintained from indigenous production. The Netherlands probably will be a net exporter of about 43,000 tons in 1950-51 while in 1949-50 its net imports were approximately 22,000 tons.

The largest anticipated increase in imports was reported for South Korea. The extent to which this program can be implemented in 1950-51 in view of the present situation cannot now be determined. Imports into India and Egypt are expected at about the same level as in 1949-50. Initial production in token quantities from the plants now under construction will probably add to the available supply. If production from the new plants should be more substantial than now anticipated, import requirements would probably be somewhat lower.

In Europe, the import requirements of Denmark, Greece, Ireland, and Iceland total about 54,000 tons more than in 1949-50. Spain imported about 50,000 tons of nitrogen in 1949-50 and will probably take at least the same amount in 1950-51. The import requirements of the eastern European countries are not known but would probably increase considerably if trading conditions were favorable.

PHOSPHORIC ACID

Current Situation and Outlook: The current world trend in the production and consumption of phosphoric acid in the form of superphosphate—both single and triple grades — ammonium phosphates, basic slag, and other forms of phosphatic fertilizers, is still slightly upward. Total production and consumption of phosphates in these forms in 1949-50 are estimated to be about 5.3 million tons P_2O_5 in comparison with 5.1 million tons in 1948-49.

The outlook for 1950-51, based on estimates made in May and June

SHARPLY REDUCES COSTLY BREAKAGE—

CHASE sharkraft

Built to **TAKE** *it!*

THE ALL-CRINKLED MULTIWALL BAG

Breakage is costly in many ways . . . to you, to your customers! All plies of Chase SHARKRAFT are crinkled to give "shock-absorbing" elasticity, assuring much greater resistance to breakage! The "shark-skin" crinkling of SHARKRAFT provides a sure grip—makes for easier handling and better stacking qualities. Available in choice of 2 to 5 plies. Furthermore, you'll find that the sharp, colorful printing and the attractive appearance of SHARKRAFT bags help stimulate the sale and acceptance of your product. Get the facts on this better container . . . Chase SHARKRAFT . . . mail coupon TODAY!

THE IDEAL CONTAINER FOR

- Farm Products
- Powdered Milk
- Mineral Concentrates
- Seeds • Chemicals
- Pharmaceuticals
- Fertilizers
- Rock Products
- Meat Scraps and Tankage
- Starch Products

SINCE 1847

CHASE BAG COMPANY
309 West Jackson Boulevard
Chicago 6, Illinois

Gentlemen: Please send me more information about SHARKRAFT bags for the packaging of: .....

☐ Have Salesman Call

Name.....

Address.....

City.....State.....

CHASE BAG CO. GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • HUTCHINSON, KAN. • CROSSETT, ARK. • SAN FRANCISCO

1950 is for a relatively small increase in both production and consumption of phosphoric acid to about 5.6 million tons. As indicated in Table 3, every continent expects to contribute to some extent to this increase. Ground rock phosphate is not included in the totals for production and consumption, as data for the years under consideration are not available for all countries.

Forms of Phosphatic Fertilizers: The most important world source of available phosphate is 16 to 20 percent superphosphate. At the same time, there is a growing interest and expansion in production capacity for some of the more concentrated forms of phosphatic materials, particularly 32 to 48 percent superphosphate.

Out of an estimated total production of phosphoric acid amounting to 5.3 million tons P_2O_5 in 1949-50, approximately 4 million tons was produced in the form of 16 to 20 percent superphosphate. North and Central America produced the largest tonnage—approximately 1.7 million tons P_2O_5 as superphosphate out of a total production of 1.9 million tons phosphoric acid.

The second largest producing continent in 1949-50 was Europe, with 1.6 million tons P_2O_5 as superphosphate out of an estimated total of 2.5 million tons phosphoric acid. Superphosphate supplies practically all of the chemical phosphoric acid in Asia, Africa, and Oceania. In South America less than 30 percent of the supply of phosphoric acid in commercial fertilizers is in the form of superphosphate. Organic sources, such as guano, make up the remainder.

Reports indicate that facilities for the production of the concentrated forms of phosphatic fertilizer materials, chiefly triple superphosphate, were increased in 1949-50 over 1948-49. Estimated total production for 1949-50 indicates that Europe increased the output of phosphoric acid in concentrated forms, chiefly triple superphosphate, by about 10,000 tons P_2O_5; North and Central America by 45,000 tons; and Asia by less than 1,000 tons.

Among the most important causes giving rise to this increase in production is the world-wide trend toward higher analysis fertilizers. Confronted with long and costly freight hauls, some countries are finding it necessary to supply only the concentrated forms of phosphatic fertilizers. Even where shorter freight hauls are usual, there is a growing tendency to increase the concentration of plant nutrients in fertilizers delivered to the farm.

To further increase the total analysis of mixed fertilizers above certain percentages in some areas it is necessary to use more concentrated phosphatic materials. Thus, the available supply of triple superphosphate, ammonium phosphates, and other forms more concentrated than 20 percent superphosphate, is becoming increasingly important.

Developments in Phosphoric Acid Production: A trend towards the greater and more efficient use of natural resources for the manufacture of phosphatic fertilizers is evident in some countries, especially in the industrially underdeveloped areas. There are three major causes for this development.

(a) The increasing use of nitrogen is compelling the greater consumption of mineral fertilizers to balance the nitrogen. While this applies to all mineral fertilizers, in areas where the use of fertilizers is relatively new, experimental work indicates that the primary need of many soil areas is phosphoric acid. Under modern conditions, nitrogen fertilizers can be produced in any location from the non-depletable source—the air—where certain raw materials and power are available; mineral fertilizers, in contrast, are supplied from depletable natural resources available only in certain locations.

(b) Increased crop production and less abundant supplies of soil phosphorus necessitate a larger supply of available phosphoric acid in the form of fertilizers.

(c) Many countries find it difficult to provide suitable exchange in payment for imports of phosphatic fertilizers.

These and other reasons have created a more intensified interest in the production of phosphatic fertilizers from indigenous natural resources in countries which formerly had not produced any, and in increasing the indigenous production in other countries.

Research of various kinds and industrial expansion in the production of phosphatic fertilizers is taking place in Latin America, Asia, Africa, and Oceania as well as in the larger producing continents of Europe and North America. The increasing production of granulated superphosphate is an important development in some countries, particularly in the United Kingdom.

In **Latin America** chemical phosphoric acid is produced in Argentina, Brazil, Chile, Colombia, Uruguay, and Mexico. Recent reports indicate that the preliminary estimate of the volume of Araxa apatite in Brazil has been confirmed. This, together with the development of processes suitable for manufacturing phosphate from the Araxa ore,

Table 3. — Production and Consumption of Phosphoric Acid, 1948/49 and 1950/51

Continent	Production		Consumption	
	1948/49	1950/51b/	1948/49	1950/51b/
	(. . . Thousand metric tons P_2O_5 . . .)			
Europe	2,371	2,654	2,275	2,600
N. and C. America	1,989	1,979	1,893	1,912
S. America	42	59	73	93
Asia	177	283	241	360
Africa	108	140	112	144
Oceania	443	517	459	539
Total c/	5,130	5,631	5,053	5,648

a/ Excluding ground rock phosphate.
b/ Outlook.
c/ Total may differ from sums due to rounding.

makes a proposed new plant at Bello Horizonte feasible. The production capacity from 18 to 20 percent superphosphate has also been increased in Sao Paulo and Rio Grande do Sul, using indigenous and imported ores. Cuba is planning to increase production of ammoniated phosphate and Mexico of superphosphate. A new plant for the production of superphosphate is planned in Argentina. Substantial improvements have been made in the production and distribution of guano, an important source of phosphoric acid in Chile, Peru, Ecuador, and Mexico.

In **Asia** superphosphate is produced chiefly in Japan, though smaller but vitally important tonnages are produced in both India and Taiwan. Japan produced 220,000 tons P_2O_5 in 1949-50, an increase of 32.5 percent over the previous year. The entire production of India—10,930 tons P_2O_5 in 1949-50—is taken over by the Central Phosphate Pool maintaned at the Central Ministry of Agriculture and then distributed to the provinces and states, according to their requirements, at a certain fixed price. The production in Taiwan was doubled in 1949-50 and further increases are planned. In Israel a new plant, which began operation in the autumn of 1949, will increase production capacity from 3,000 to 11,400 tons P_2O_5 annually.

In **Africa** it is expected that increased plant capacity in Natal will almost double South African superphosphate production. A small increase is planned in Egypt.

In **Oceania** phosphoric acid is of primary importance in the agricultural economy. Superphosphate in New Zealand is being manufactured at a rate almost equivalent to the peak reached in 1940-41. It is reported that until new plants are established, reliance for increased supplies must be placed largely on basic slag, ground rock phosphate, and imports of superphosphate, provided such imports can be made at prices attractive to farmers.

In Australia the production of superphosphate increased from 318,000 tons P_2O_5 in 1948-49 to 345,000 tons in 1949-50. A large sulphuric acid plant being built in South Australia will ensure sufficent superphosphate for the State's rapidly growing agricultural needs.

Phosphate Rock: Reports indicate that world production of phosphate rock is, and will be, quite adequate to meet effective demand for the present and for the immediate future. It is estimated that production in North Africa in 1949-50 will be about 6 million tons, which is a little higher than in 1948-49. Production in the United States was already high in 1948-49—almost 7.6 million tons, which increased to more than 7.7 million in 1949-50. Rehabilitation of production in Oceania is about complete. To ensure more sustained supplies, the Governments of Australia and New Zealand have agreed to the purchase of phosphate leases on Christmas Island in the Indian Ocean. Production in Curacao, N.W.I., in 1948-49 was 63,500 tons and is expected to increase to 90,000 tons in 1949-50 and 1950-51.

(To be concluded next month).

THE BIRTHPLACE OF THE INDUSTRY IN AMERICA

A little while ago we saw in "Baltimore", beautifully produced publication of the Chamber of Commerce of the birthplace of mixed fertilizer in America, a well-written, thorough story of our industry's beginnings, and the present fertilizer manufacturing picture there. We asked and got permission to run this—and present herewith the first installment of it. We had hoped to present early fertilizer plant pictures, too. But they seem to be very scarce. The Baltimore fire of 1904, for example, destroyed many old records—and our readers will, we know, regret this. But the article is worth your while, and we hope you will read all of it.

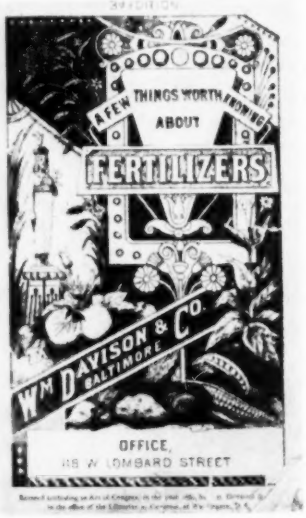
Prepared by the INDUSTRIAL BUREAU *Baltimore Association of Commerce*

Baltimore is the nation's leading fertilizer producing center; and Maryland, now as always, the largest fertilizer producing state, with approximately 18% of the nation's total output.

In addition, the manufacture of superphosphates, a prime essential in fertlizer, is five times the entire fertilizer tonnage in the state, Baltimore alone producing approximately a fourth of all superphosphates made in the nation.

This leadership is most appropriate, for it was in Baltimore that a new era in agriculture began 126 years ago with the importation of bird guano from Peru; and it was in this city a century ago this year that the modern mixed fertilizer industry was born. Here, too, it received direction during its formative period.

This year The National Fertilizer Association is celebrating, on a country-wide scale, "A Century of Progress with Fertilizer." It seeks to emphasize the importance of the industry. The U. S. Department of Agriculture, for example, declares it responsible for fully 20 per cent of all agricultural production in America. Thus it would seem that national prosperity is closely allied with its fertilizers, and that the old saying "no fertilizer, no crops" still holds true. It is also appropriate, in the light of the history of this vital industry, that a Baltimorean, J. E. Totman, should succeed to the chairmanship of the national body in the year it is celebrating its 100th birthday.



Searching for interesting old fertilizer material to illustrate this article, we encountered the above booklet which is from the archives of Davison Chemical Corporation, which was loaned to us for this issue, by Dr. Vincent Sauchelli. The illustration on the next page is a wood cut of the early plant of the Davison Chemical Corporation.

Strange as it may seem, the story of this industry contains probably more of romance, adventure in far places, of moonlight on summer seas, of sudden storms and violent deaths, of scientific achievement and dogged perseverance than that of any other of the many local industries.

The story of the fertilizer industry divides naturally into two parts. The first includes a comparatively brief but tempetuous period during which bird guano was imported in constantly increasing amounts, and used in its pure state for the enrichment of the soil; the later period, which still continues, began when chemists started experimenting with the product, mixing it with other ingredients, and chemicals, in an effort to extend its range and usefulness.

First Fertilizer Advertisement

What was probably the earliest fertilizer advertisement to be printed in this state appeared in the June 11, 1772, issue of the **Maryland Gazette.** It was inserted by John Kelley, an individual with a sporting instinct, for he offered "50 Pistoles" against £5 that he could discover on any 1,000-acre farm anywhere in Maryland a "pit of Marl!" Concerning the merits of marl, as a fertilizer, Kelley claims: "Wherever Marl is used, the Ground will bear Crops 24 Years, no Rust will infect the Wheat, nor any Worm or Mole live in it." Laws enforcing "truth in advertising" had not, then been heard of.

The beginnings of the present-day fertilizer industry occurred in 1824 when two casks of Peruvian bird guano arrived in the port, consigned to John S. Skinner, editor of **The American Farmer,** which was

the first agricultural journal to be published in America. In addition to this incident marking the beginning of what was destined to grow into one of the nation's important manufacturing industries, it was of even greater consequence in that it marked the beginnings of a new agricultural era.

Maryland Originally an Agricultural State

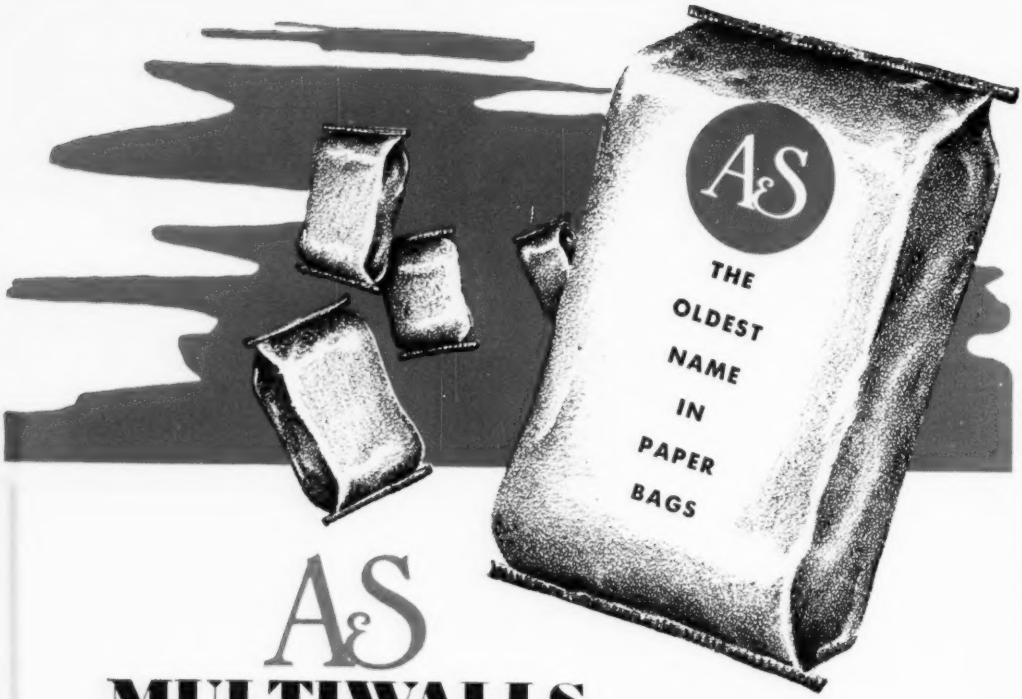
From the earliest colonial days Maryland had been an agricultural state, its arable land given over almost entirely to the cultivation of tobacco, and, to a much lesser degree, of corn and grain. Year after year the same crops were raised with the inevitable result that the land itself became impoverished. Then, in the middle of the eighteenth century, Dr. John Stevenson of Baltimore, and others, discovered the rich rewards awaiting those who would grow wheat, rye, corn and other grains, and export them in their raw state. Baltimore already had developed into a large milling center. Later her harbor was to become one of the busiest in the export of flour to the West Indies, to South America and even to Europe. In their eager effort to supply grain to meet this constantly increasing demand, the farmers were dismayed to find that much of their cultivated land lacked productivity. They were therefore faced with a great crisis. Their land must be made more fertile. But how?

The story of the Ellicotts in the growing of grain shows the manner in which this fertilizer problem was partly solved. Ellicott was a great name in early Baltimore industry. Their large mills at Ellicott City needed wheat. The farmers thereabouts were one in declaring the surrounding tobacco fields would not grow this product. So, as was their custom, the Ellicotts set themselves successfully to the task. They imported plaster of Paris, or gypsum, from Nova Scotia, and were the first to use this ingredient on a large scale to enrich Maryland farm land. Some of the nearby farm lands of Charles Carroll of Carrollton were thus fertilized and production increased by two-thirds. The plaster of Paris was ground in a small mill the Ellicotts erected at Ellicott City, using water as its motive power.

Plaster of Paris as Early Fertilizer

Plaster of Paris, however, though superior to stable manure which, along with wood ashes and lime, had been commonly used to enrich impoverished farm lands from early times, was not available in quantity, nor was it of sufficient richness to be highly popular. A better and cheaper product was demanded. In this search, various combinations were suggested. One of the most interesting was from a surprising source. Near Belair lived Junius Brutus Booth, himself a well-known tragedian, father of Edwin Booth. He was the first individual in the country, it is said, to appreciate the value of bone for fertilizer. It is an interesting fact that pure ground bone is today one of the prized products of a leading local fertilizer company. To obtain sufficient bone for use on his farm, Booth found it necessary to advertise. This he did as early as 1825. Quantities large and small were eagerly purchased. The bone was broken by machinery into fine bits, and either used in this form or mixed with Peruvian guano. This was probably the first bone fertilizer made by machinery in this country.

The earliest answer approximating satisfaction to this insistent demand for a better, more abundant and cheaper fertilizer was found in the importation of Peruvian guano. Although the first of this material was received in 1824, and the first commercial shipment in 1832, it was not until the 1840's that it began to arrive with any regularity. In 1833 Maryland passed the first fertilizer inspection law in the United States. It was the strict observance of this legislation that placed the stamp of quality on all guano arriving at the local port. Many shiploads were refused admission and were forced to unload at the ports of other states which did not protect purchasers. In 1844 there were 445 tons imported; by 1854 it had reached 58,927 tons. During the following 26 years the import of this bird guano from Peru totaled 440,330 tons. Peru grew seemingly rich through disposing of her guano supplies. Upon three small islands alone, called the



A&S MULTIWALLS *stand* UP *and* OUT!

RECENT DEVELOPMENTS FROM THE A&S PACKAGING LABORATORY

- **EXPENDABLE PALLETS**
  Palletized shipments of A&S bags lower your handling costs, minimize storage space.
- **STA-STAK BAG**
  Creped outer wall takes skid and slip out of stacking. Greater resiliency, easier handling.
- **SHUR-CLOSE**
  Ingenious bag valve assures less dust when packing — less sifting when packed — prevents waste.
- **PLASTO-PAK BAGS**
  Polyethylene lined, moisture-proof protection for hygroscopic materials with exclusive "Electro-Seal" bottom closure.
- **SUPER GLOSS FLOUR BAG**
  Toughest of flour bags is bright white with brilliant inks to provide sparkling, appealing shelf packages.
- **ARK-TONE PRINTING**
  Sharp, clear color process combines perfect reproduction and brightness for consumer packages.
- **HI-TONE PRINTING**
  Strong, deep colors for sugar, salt, rice and similar bags.
- **PRESSUR-PAK BALE**
  Bags are packed under pressure. Saves 50% of customers' space allotted to storage.

• A&S Multiwall bags *stand up* under all kinds of shipping and storing abuse, because every ply is made of No. 1 specification kraft, and every bag must pass the rigid A&S spot inspections.

A&S Multiwalls *stand out* because they are printed on modern 4-color presses that reproduce a bag design in eye-arresting colors unsurpassed in commercial bag printing. Why not have our A&S packaging specialists analyze your packages? These men know how to build impact into the flat exterior of what could otherwise be a dull and unimaginative package. This combination of unusual design and faultless printing is yours at no extra cost.

ARKELL and SMITHS

CANAJOHARIE, N. Y. · WELLSBURG, W. VA. · MOBILE, ALA.

ARKELL & SMITHS · 90 YEARS OF KNOW HOW · THE OLDEST NAME IN PAPER BAGS ·

Chincha Islands, off the south coast of Peru, it was estimated there were about 40,000,000 tons of deposits. Baltimore vessels traded only in these deposits, which were loaded by Chinese coolies and Peruvian convicts. Thus countless birds for many generations served Peru and Baltimore well.

An Island In the Caribbean

But Peru was far away, the deposits accessible only to intrepid sailors. Peruvian guano continued to be imported until the '70's and to form the basis of mixed fertilizer. A satisfactory source, much closer home, was found in 1856. This discovery was made quite by chance. Capt. Edward K. Cooper, of Baltimore, sailing the bark "Abbotsford" south through the blue waters of the Caribbean Sea lost a member of his crew by death. Shortly thereafter, while some twenty-five miles off the west coast of Haiti, there arose out of the sea a small island a mile in area, around which clustered four other tiny bits of land, unmarked on any chart. Capt. Cooper dropped anchor and went ashore with a burial party. In digging the grave he discovered deposits which he thought guano. Realizing the wealth upon which he had accidently stumbled, Capt. Cooper claimed them for himself by right of discovery. The large island he named Navassa, the entire group the Guano Islands.

Congress formally awarded Captain Cooper possession of the islands. But the Emperor Saloque, of Haiti, likewise claimed them, and took actual possession. Thereupon General Lewis Cass, Secretary of State under President Buchanan, ordered Commodore Turner, commander of the United States fleet, to clear the islands of Haitian forces. The order was promptly executed. Not only were his soldiers forcibly returned to the mainland, but an apology was demanded from the Emperor together with a promise that in the future Capt. Cooper would be free from molestation.

So great was the interest aroused as a consequence of this episode that Congress soon thereafter "made a law" to the effect that in future any uncharted island along the American coasts was to become the property of the United States citizen discovering it. This led to many romantic voyages by adventurous citizens, but there exists no record to show that any of these experienced the great good fortune that fell to the lot of Capt. Cooper.

With the island safely in his pocket—a lone speck of land in a tropic sea, bare and uninhabited — the happy mariner set about the exploitation his new domain.

Capt. Cooper's first problem, following his diplomatic success, had to do with labor. The task of loading vessels with guano was not appealing to the ordinary worker. Nor was life on the island attractive —a torrid, treeless tract without amusement or distraction. In this impasse an unusual solution presented itself. Capt. Cooper signed a contract with the State of Maryland for use of several score of its prisoners confined in the Penitentiary.

The prisoners transported to Navassa regarded the sentence as the ultimate of earthly punishment. Only those with several years to serve were assigned to this work. The nature of their work, and the loneliness involved, quite naturally engendered deep hate and reckless rebellion, the island was often the scene of bloodshed and death.

Nor frequently was Nature herself the friend of these hopelessly desperate prisoners. Most often she smiled; but when she frowned and conjured up dread hurricanes, the exposed surface of the island often was swept bare of human beings, no less than temporary shacks. On one occasion, following an unusually severe storm, it was found that forty men were dead.

An interesting angle to this island story developed many years after its valuable deposits had been found and were imported to Baltimore in such large quantities. Then it was discovered that the fertilizer was not bird guano, as had been thought, but sulphate of lime, equally good for enrichment of the soil. Chemistry at that time was not the exact science it is today. The story cannot be related here, but one of the most unusual defenses ever offered at a murder trial resulted from this early confusion of the nature of the material imported from Navassa island.

Capt. Cooper worked his island until 1864, when he sold it to the Navassa Phosphate Company of New York City, which continued the business there for many years, but not with Maryland prisoners. Associated with Capt. Cooper in his successful Navassa venture was R. W. L. Rasin, who had moved to Baltimore with his family, at the age of ten, from Queen Anne County. Rasin was later to become a powerful figure in Baltimore's fertilizer industry. He was of French descent and his forefathers were among the pioneers in the colonization of Maryland, settling on Kent Island in the 1730's.

(To be continued in our November Issue).

This picture was made in Spencer Chemical Company's new Southeastern District Sales Office in Atlanta, Georgia.
Pictured are those who attended the District's first meeting held in Mid-September. Left to right: Jim Reed (Georgia); Bob Mullett (Alabama); Claude J. Byrd (Asst. Sales Mgr. Agric. Chemicals); Herbie Davis, (South Carolina); John L. Sanders, seated, South East District Sales Manager; Harold Bingham, Traffic Mgr.; Elizabeth Mitchell, Secretary; Harold Dinges, Sales Mgr., Floyd N. Miller, Dist. Tech. Service Representative; M. Kirk Sanders, (Florida).

Coming Conventions

Edgewater Gulf Hotel, Edgewater Park, Mississippi—midway between Gulfport and Biloxi—will be headquarters for NFA's fall meeting November 13, 14 and 15. Facing the Gulf of Mexico, the hotel has 600 acres of beautifully landscaped grounds. Its recreational facilities include an 18-hole championship golf course and a swimming pool.

CFA CONVENTION PLANS

President J. M. Quinn announced that the 27th Annual Convention of the California Fertilizer Association to be held at the famed Hotel del Coronado in San Diego, November 2, 3, and 4th, will feature outstanding men in the field of science including Dr. Russell Coleman, Dr. Vincent Sauchelli, Dr. Paul F. Sharp, and others.

Two days will be given over to convention business, the third day to recreation and sports.

Spotlighting the opening day are Dr. Paul F. Sharp, Director of Experiment Station, College of Agriculture, University of California. His topic will be "Research Program of the College of Agriculture."

The second speaker of the morning, Dr. Vincent Sauchelli, Director of Agricultural Research, Davison Chemical Corporation, Baltimore, will discuss "Phosphates in Agriculture."

Dr. Russell Coleman, President of the National Fertilizer Association will be the luncheon speaker.

The afternoon meeting has been set aside for official Association business.

Allen B. Lemmon, Chief of the Bureau of Chemistry, mapped the session for Friday morning, November 3rd, and with Robert Z. Rollins, Assistant Chief, will present a "Report of the Year."

They will be followed by DeWitt Bishop, District Inspector, Bureau of Chemistry, Sacramento, "Deficient Fertilizers, the Child of Errors."

Dr. W. E. Domingo, Director of Agronomy, The Baker Castor

Special Train For Chicago NFA Members

Because a large number of persons are expected to attend NFA's fall meeting from the Chicago area, some better-than-usual arrangements may be made for transportation by rail. All those interested are asked to contact Association headquarters at once, giving the dates on which they plan to leave from Chicago and to return from Gulfport, Mississippi.

CFA SPEAKERS

Vincent Sauchelli, Davison Chemical

Russell Coleman, NFA President

STRENGTH *in*

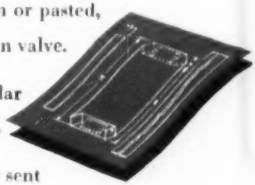
dependable paper shipping sacks

starts with KRAFT

. . . and the strongest, toughest kraft comes from our own mills, made under the watchful supervision of our own master Kraftsmen.

Then, in the most modern plant of its kind, this strong, tough kraft is fashioned into heavy-duty, multi-wall shipping sacks.

We make them in many sizes and many plies, printed or plain, either open mouth or valve, sewn or pasted, flat sewn open mouth or flat sewn valve.



In fact, we make sacks to fit your own particular specifications—or we'll design them to fit special needs.

Now, more products are economically sent to market in the strongest KRAFT all-purpose multi-wall bags yet produced.

You'll find that out when you investigate.

KRAFT BAG CORP.

GILMAN PAPER COMPANY SUBSIDIARY

Send your product to market in a "KRAFT BAG"—*the container for a thousand uses!*

Plants at St. Marys, Georgia and Gilman, Vermont

630 Fifth Avenue, New York 20, N.Y.
Western Sales Office:
Daily News Building, Chicago 6, Ill.

Oil Company, closes the meeting with a talk and motion picture on "Castor Beans, America's New Cash Crop."

The College of Agriculture, University of California and the Soil Improvement Council of CFA are jointly handling the afternoon session. M. E. McCollam, Chairman of the Soil Improvement Committee, will open the proceedings and introduce, Dr. Daniel G. Aldrich, Associate Chemist Citrus Experiment Station, Riverside,—"P and K Experiments on Citrus."

J. H. Nelson, Nelson Laboratories, Stockton, "Observations on Fertilizer Use in the Stockton area."

Dr. Hans Jenny, Professor of Soils, College of Agriculture, Berkeley,—"The Contact Theory of Mineral Nutrition of Plants in Soils."

A. H. Dill, A. B. Farquhar Company, "Precision Placement Machinery."

Dr. A. O. Lorenze, Assistant Professor Truck Crops, College of Agriculture, Davis, "Fertilizers in Irrigation Water."

The Association banquet will be held on Friday evening.

A golf contest for women, and golf and bowling contests for men take place on Saturday morning, with prizes awarded at a wind-up luncheon in the afternoon.

Balfour Guthrie Company and American Potash and Chemical Company will be hosts at cocktail parties, long a convention custom, on Thursday and Friday evenings.

The Board of Directors will hold their regular business meeting on Wednesday evening, November 1st.

Dr. Wallace Macfarlane, Pacific Guano Company is Program Chairman. Tom Lathe, local Manager of Wilson and George Meyer Company, is Entertainment Chairman. Mrs. Norman Springer is Chairman of the Ladies Convention Committee which includes Mrs. Byron Reynolds, Mrs. Ned Lewis, and Mrs. Sidney Herzberg.

Officers and Directors will be elected for 1951. Outgoing officers are President J. M. Quinn, Vice-President Lowell Berry, Treasurer Grover Dunford, and Secretary Paul Pauly. Directors whose three year terms expire are Lowell Berry, Best Fertilizers Company; Murray C. McNeil, Swift and Company; and Byron Reynolds, Bandini Fertilizer Company. Elmer S. Nelson, Executive Secretary and Manager, has charge of general arrangements.

Commercial Solvents Antibiotics Award Established

The Commercial Solvents Corporation and the Society of American Bacteriologists announce the establishment of an annual award for outstanding research in the field of antibiotics.

The award, one thousand dollars and a gold medal, will be given to an individual or a group of individuals working in the Western Hemisphere who contribute to the better understanding of antibiotics. In selecting the winner of the award, particular attention will be given to the basic nature of the research upon which the award is made.

ALABAMA

Covington Fertilizer Company, Andalusia, expected to be making deliveries by the time this sees print. Equipment was coming in on schedule, as were materials.

ARIZONA

Arizona Fertilizers, Inc., Phoenix, has opened plants for production of dusting compounds, at Yuma and at Mexicali, Mexico. **Sam Dick** and **Don McCain** are managers of the humidified Yuma plant. The company has organized an affiliate at Mexicali, **Industria Agricolas,** S. A., which mixes 200,000 daily pounds of cotton dusting mixtures. They have also opened a new soil laboratory and doubled the size of the entomological laboratory at Phoenix.

* * *

Tucson Fertilizer Company, Tuscon, is having odor troubles with local residents who complain of a silo in which some 87,000 cubic feet of manure is stored for ageing. Flies, ammonia gas and use of poisonous chemicals are supposed to be causing illness, asthma and sundry other difficulties in the vicinity, according to report of a court action against the concern, which responds that their pit is more efficiently handled than any in the state, and anyway there are no homes within several hundred feet of it.

DELAWARE

Melson Fertilizer Plant, Georgetown, has been having neighbor trouble, and has been instructed that it must cease and desist operations at its present location by January 1. **Harvey Melson,** president and **George Meade,** superintendent, appeared at a meeting of the town council and explained plans to move, and that orders had been placed for necessary equipment, a site has been purchased, and building plans drawn. They expect to be in operation at the new site before the deadline. Meanwhile they can operate only when the wind is in the right direction!

ARKANSAS

Ark-Mo Plant Food Company, Walnut Ridge, has acquired a huge airplane hangar near their plant where they are installing a bagging unit, which with their present equipment will give them 700 tons per 8-hour shift. They were assured the air base on which the hangar stands would not be re-activated.

FLORIDA

Gulf Fertilizer Company, Tampa, suffered $5,000 damage when fire broke out in a large pile of tobacco. The smoke made fire-fighting difficult. **Fred Woods** is owner of the concern.

* * *

Naco Fertilizer Co., Vero Beach, are erecting a new structure 120 by 60 feet, with an asbestos type roof at an estimated cost of $20,000.

GEORGIA

Cotton Producers Association, Carrollton, lost their plant, estimated at $300,000 in a recent fire which for a time also threatened their ammonia and gasoline tanks. Some dynamite stored in a separate building exploded. The plant was built in 1904.

ILLINOIS

Buhner Fertilizer Company, Danville, had a fire recently, the damage estimated at $5,000 by general manager **Carl Sparks.** The firemen called for extra help in the form of a street-flushing tank truck and a switch engine tender, which brought water to the blaze. The fire was confined to the conditioner storage bin.

LOUISIANA

Green & Reedy Fertilizer Company, Franklinton, are completing construction of a 260' x 160' all steel fertilizer mixing plant, machinery supplied by Atlanta Utility Works, payloaders by Frank G. Hough & Co. They will utilize their tung meal and tung hull byproducts.

MINNESOTA

Minnesota Farm Bureau Service Co., Moorhead, has opened a fertilizer plant which cost $250,000. Materials are stored in 10 bins, conveyed to mixing by belts and an elevator. The plant employs 15 men, and has an annual production of around 18,000 tons. **Adolph Norem,** general superintendent, was transferred from the Farm Bureau plant at St. Paul. Output will be distributed by the **Clay County Farm Bureau Service Co.,** of which **Clarence Johnson** is manager.

NEW MEXICO

Duval Sulphur and Potash Company, Houston, Texas, are erecting a potash refinery at Carlsbad, New Mexico, which will be in operation within the next twelve months, shipping a high grade muriate of potash. **Ashcraft-Wilkinson,** Atlanta, who have represented Duval since they first started mining sulphur some twenty years ago, are exclusive agents on potash as well.

NEW YORK

International Ore and Fertilizer (New York) Company, Inc., New York City filed to drop the "(New York)" and become "Corporation" instead of "Company." At the same time they lifted their capital stock from 300 to 600 no par value shares.

NORTH CAROLINA

J. P. Stevens Warehouse Company, has leased a large warehouse at Fayetteville to which Cal-Nitro will be shipped in bulk for bagging a distribution. About 200 daily tons can be handled. **Louis B. Harkins** is plant manager.

* * *

Robertson Chemical Company, is building a plant at Statesville which will have a capacity of 40,000 to 50,000 annual tons and will employ fifty people. **E. DeJarnette** will be in charge, assisted by **T. S. White. C. B. Robertson,** Norfolk, is president. **McClosky Company,** Pittsburgh, has the construction contract for an all-steel building. A five-

acre fire-protection lake will be created, and a 10-inch well drilled. Operations are expected to begin February, 1951.

* * *

Planters Cotton Oil and Fertilizer Company, Rocky Mount, elected officers and directors at the forty-seventh annual meeting of the stockholders held on Thursday, Sept., 7, 1950, at the plant on Cokey road.

One new director, **Benjamin B. Woodard,** was named and a number of promotions among officers were listed.

The president, **Robert D. Gorham,** declared in his annual report that the mill had enjoyed a satisfactory year. He also discussed the operations of the company and commented on the outlook for the year ahead.

The following directors of the company were elected by the stockholders: **Robert D. Gorham, W. Maurice Daughtridge, DeLeon Carter, Milton P. Dawson, R. Russell Braswell and Benjamin B. Woodard.**

After the meeting of the stockholders, the directors elected the following officers of the company: **Robert D. Gorham,** President; **W. Maurice Daughtridge,** Vice-President; **John D. Robbins,** Vice-President; **William T. Melvin,** Vice-President; **George W. Gorham, Jr.,** Vice-President; **Theo. H. Pitt,** Secretary and **James L. Murphy,** Treasurer.

VIRGINIA

Richmond Guano Company, Richmond, has started construction of a Superphosphate Plant that they expect to complete next Spring. They are installing a 40-ton Sturtevant Den, and using a Luria Steel and corrugated asbestos building 100' x 200'. The company has not manufactured superphosphate since their old chamber sulphuric acid plant and wet mix building were destroyed by fire in 1934.

AUSTRALIA

Australia will this year import 45,000 tons of ammonium sulphate fertilizer to supplement their own 50,000 ton production. 30,000 tons from UK, the remainder from Germany.

The new superphosphate works at Albany, Western Australia, being built by Albany Superphosphate Co., Ltd. has been delayed by a steel shortage, but is now promised steel soon.

ENGLAND

Inaccessible hill pastures are now being fertilized from airplanes in Central Wales at a cost of about $1.25 per acre for application.

INDIA

The great Sindri fertilizer plant, one of the largest in the world, with an output of 100 daily tons is expected to be in production by the end of the year. Brig. **M. H. Cox** is chief technical adviser.

Farmers Like Sheeting Bags

Cotton fertilizer bags constructed from quality sheeting with high re-use value are gaining swift approval in an initial appearance on the market this season, the National Cotton Council reports.

Claiming the sheeting bag as an important new "plus value" for farmers, the Council cites savings through household re-use and resistance to breakage.

According to a survey of 1500 families in 14 southern states conducted recently by the **Progressive Farmer,** farm magazine, re-use appeal of the sheeting bag will be a strong factor in buying. Ninety-four per cent of those replying to the questionnaire expressed a preference for such fertilizer bags because of re-use values in home sewing and farm work.

Purcell Heads Combustion Engineering in South

F. J. Purcell, with Combustion Engineering - Superheater, Inc., Raymond Pulverizer Division, Chicago, Illinois, recently rented office space at Shaw's Office Service, 735 Spring St., N.W., Atlanta, Georgia. His territory includes the following states: Tennessee, Kentucky, Alabama, Mississippi, Louisiana, Georgia, North Carolina, South Carolina, Virginia, and Florida. F. D. Squier has been transferred from Chicago to assist Mr. Purcell in a service and sales capacity.

CHEMICAL CONSTRUCTION INTRODUCES NEW TYPE CONTACT SULFURIC PLANT

Chemical Construction Corporation, 488 Madison Avenue, New York, has developed a new way to make sulfuric acid which eliminates seven major items of equipment, General W. N. Porter, President of the firm, announced recently.

The new design is much simpler than the conventional contact process and represents an estimated saving of as much as twenty percent of the present capital cost of an erected medium size sulfuric acid plant in the United States.

A commercial-size plant embodying the new design has been in operation since early June of this year at American Cyanamid's works at Hamilton, Ohio.

The new process is the result of the development of the following units:

(1) Quench converter
(2) Bubble absorbers, using evaporative cooling
(3) Low cost Pease-Anthony venturi sulfuric acid mist eliminator

As will be seen from the flow diagram, the new sulfuric acid process eliminates seven major items of equipment. Traditional components of conventional contact installations which are no longer needed include: a) drying tower, b) gas filter, c) heat exchanger between primary and secondary converter, d) sulfur trioxide cooler, e) acid coolers, f) acid transfer pumps and piping, and g) dilution system, consisting of dilution tank, pumps and cooler sections.

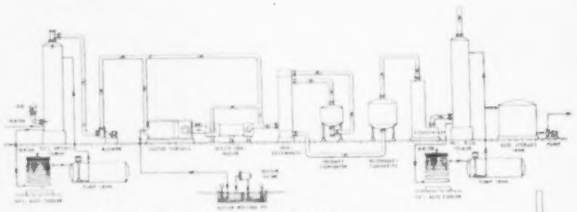
Quench Converter

Elimination of the drying tower made it necessary to omit all heat exchange surfaces as potential corrosion hazards. The quench-type converter was developed to solve the problem of interstage cooling.

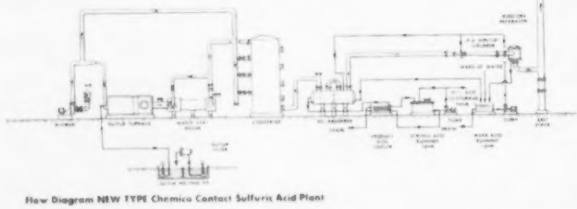
Catalytic oxidation of sulfur dioxide is carried out in four successive stages. Temperature control is effected by admitting cold, atmospheric air between the converter stages.

With burner gas containing 12 percent sulfur dioxide by volume and using a catalyst loading equivalent to that of conventional contact converters, conversion of SO_2 to SO_3 in excess of 99% is consistently achieved. For all practical pur-

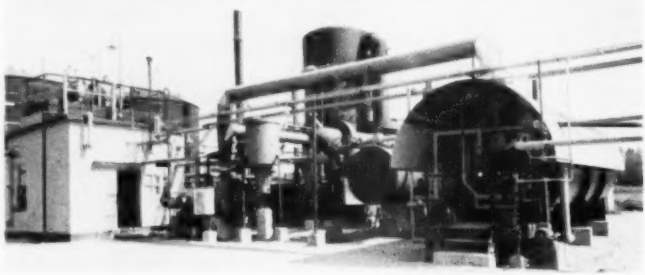
Above, flow diagrams, showing clearly the basic differences in design between these two types of sulphuric acid plants. Below, a photograph of the new type Chemico contact sulfuric acid plant.



Flow Diagram STANDARD TYPE Chemico Contact Sulfuric Acid Plant



Flow Diagram NEW TYPE Chemico Contact Sulfuric Acid Plant



poses, this conversion represents an equilibrium yield.

Bubble Absorbers

The new absorption system represents one of the truly novel and original parts of the process. The entire heat load provided by the sensible heat of the gases leaving the converter as well as the heat of formation of the sulfuric acid is removed by latent heat of evaporation of water vapor in a staged absorption system.

Plants of this design will produce acid up to 95 percent sulfuric acid strength. It is possible to produce lower concentration without using additional equipment. Acid transfer is by gravity flow thus eliminiating the need for transfer pumps.

Pease-Anthony Venturi Scrubber

The venturi scrubber consists essentially of a venturi tube. Mist laden gasses leaving the low stage absorber are scrubbed in the throat at a high velocity by means of a recirculated stream of dilute sulfuric acid solution. The high degree of turbulence prevailing in the venturi throat achieves very intimate contact between the gas and scrubbing medium. This results in practically complete capture of the sulfuric acid mist particles. Entrained liquid leaving the venturi is removed from the gas stream in a cyclone type mist separator. Exit gases contain only about one-tenth of the acid mist which leaves a conventional contact plant absorption tower. The visible exit from the stack is a plume of steam which disappears within a short distance of the plant.

NAC CONVENTION REPORT

Farmers need not worry about ability to get farm chemicals, to maintain wartime food production schedules. That is the reassuring theme that comes out of the 17th annual meeting of the National Agricultural Chemicals Association which met at Spring Lake, N. J. last month. Keynoting, Ernest Hart, the association's president said "Manufacturers possess capacity to provide protection for twice the number of acres of foodstuffs as in pre-war days. The Industry is also in an improved technical position and manufactures the largest arsenal of weapons in its history to control insects and diseases. It also has existing plant capacity to produce materials to destroy crops of the enemy, if called upon to do so."

This statement Mr. Hart qualified in only one way—that the industry continue to get a sufficient supply of the required raw materials.

Lea S. Hitchner, executive secretary, in his talk, made the point that USDA and others should make a survey of the need to come, the crops requiring protection—and the raw materials needed to make the farm chemicals to protect them. From such a study allocations could be planned, and the agricultural colleges could be guided in their control program advice. NAC has established a committee of industry leaders whose services have been offered to USDA to aid such a survey.

Avery Hoyt, USDA Entomology chief was unable to be present, and his talk was read by Dr. S. A. Rohwer, USDA, who also appeared on the Soil Contamination panel. The USDA viewpoint was one of close cooperation between the industry and the interested government services.

Replacing Charles Concannon, of U. S. Department of Commerce, Hal C. Dilworth of National Cotton Council spoke on the need for increased cotton acreage.

Mercer Rowe, Jr., Flag Sulphur & Chemical Company, made a strong plea for better dissemination of technical information. The smaller companies in particular, he felt, need data which the association can assemble and relay to them.

Director of National Agricultural Research, Inc., Fred Bailey, pointed out that a hundred years ago it took eight people on farms to feed themselves and two people in cities. Today the figures are reversed and two people on farms feed themselves and eight people in cities. Farm chemicals, fertilizers, plant hybrids, mechanization and many other factors have joined hands to make this possible.

The American Medical Association was represented by Dr. Bernard E. Conley who reported the activities of the Committee on Pesticides, which is working with the industry to set up safe standards for farm chemi-

FARM PORTRAIT NO. 10

It was the rich harvest—not ghosts—that Halloween originally celebrated!

And today, on the great majority of our farms, the Halloween pumpkin shines out over fields that have already been harvested. The richer this harvest has been, the more likely it is that, before another season, these fields should be renewed and fortified in their fertility by the wise use of fertilizers.

Many of the most effective of these fertilizers contain potash—often Sunshine State Potash, a product of New Mexico. For potash is not only a soil nutrient, it is a crop strengthener as well, helping to resist disease and drought. Through its considered use, any farmer may be assured of increased crop output, and superior condition at time of harvest.

Reg. U. S. Pat. Off.
HIGRADE MURIATE OF POTASH
62/63% K_2O
GRANULAR MURIATE OF POTASH
50% K_2O MIN.
MANURE SALTS 20% K_2O MIN.

UNITED STATES POTASH COMPANY, *Incorporated*, 30 Rockefeller Plaza, New York 20, N. Y.

cal use, and proper remedies for accidental misuse and other phases of the medical problems as progress of the industry causes them to develop.

In the Field of FARM CHEMICALS

Pennsalt Celebrates Centennial

One hundred years ago this September, five young Philadelphia Quakers thought they had found the way to success in a new venture—an American chemical company to supply the needs of the rapidly expanding economy and industry of the Midwest.

Today their company, the Pennsylvania Salt Manufacturing Company, is one of America's leading basic chemical manufacturers, producing at its century mark at the rate of $38,000,000-worth of products a year for nearly every industry in the country. The bright dream has come true beyond anything they envisioned.

When the Pennsylvania Salt Manufacturing Company was organized in 1850, the use of chemicals to aid agriculture was primitive. The experimental work which was to develop the value of the great chemical fertilizers was still in the future and the chemical insecticides we know today were then undreamed of.

Very little of Pennsalt's early production went directly to helping farmers grow better crops. But today, chiefly in the field of pesticides, Pennsalt is one of America's leading manufacturers.

The Pennsylvania Salt Manufacturing Company of Washington is now completing a program of improvements to existing facilities at its plant in Portland, Oregon, it was announced by Fred C. Shanaman, president.

Storage and warehouse space has been expanded to take care of accumulations of herbicides and insecticides produced at the plant during winter months, and improvements have been made to buildings and facilities for the manufacture of DDT, chlorates, chlorine and caustic soda.

Commercial Solvents Adds To Research Staff

Commercial Solvents Corporation has announced additions to the staff of its Research and Development Department at Terre Haute, Indiana.

Dr. Gerald C. M. Harris, formerly a mycologist in the Dyestuffs Division of I.C.I. Ltd. in England, has joined the company as a microbiologist.

Dr. Bernard L. Lubin, formerly in the Calco Chemical Division of the American Cyanamid Company, has been employed as a chemical engineer.

New microbiologist with the company is Theodore H. Elferdink, Jr.

Smith . . .

Henry V. B. Smith, partner H. J. Baker & Bro., one of the new directors elected by Commercial Solvents, as reported here last month.

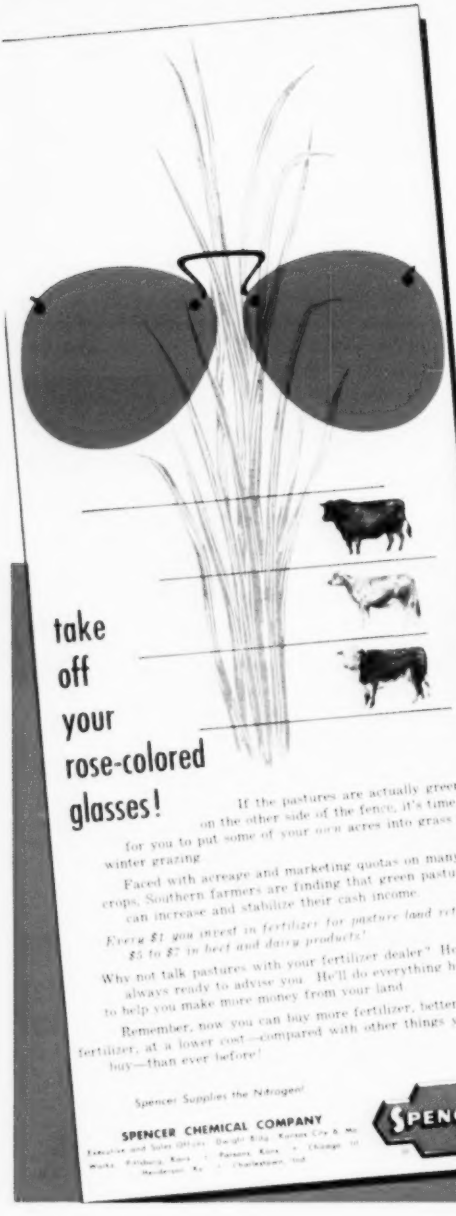
Hercules Plans Toxaphene Plant

Hercules Powder Co. has announced plans for erecting a $1,500,000 plant at Hattiesburg, Miss. for production of toxaphene.

The new unit, when completed in February, 1951, will increase the production of toxaphene by almost 50%. The company said the Hattiesburg plant site was selected in order to bring the product closer to the cotton-growing regions of Mississippi, Arkansas, Louisiana and Texas. Hercules has had a similar plant in operation at Brunswick, Ga., since 1947. The concern manufactures only the basic toxaphene for manufacturers of insecticides. The new plant will be constructed by H. K. Ferguson Co.

. . . and Smith

H. Alvin Smith, who has been moved up from executive v-p to president of John Powell & Co., New York farm chemical producers. At the same time W. J. Pollett has been placed in charge of all operations, from v-p in charge of production, and Dr. Alfred Weed, who has headed domestic sales, has become director of sales and promotion.



number one

OF A SERIES

This is the first advertisement in a campaign designed to acquaint farmers with the soil-building advantages of fertilizer. This series, which will appear in leading farm magazines, is just one part of Spencer Chemical Company's extensive program to promote fertilizer and the fertilizer industry. Color reprints of this ad are available to you upon request. Write Spencer Chemical Company, Dwight Building, Kansas City 6, Missouri.

Personals

William R. Chorlton September 25 took over management of the Portland plant of **Oregon Washington Fertilizer Company**, Seattle. **Mac Taylor**, president of "Orwn," writes that the completion of the Portland plant in the summer of 1948 set off growth that has made a full-time manager imperative, and Bill is the answer. The Chorlton experience is considerable, for a 35-year-old. He has been in agriculture since 1938, and has been **Simplot's** Washington rep since 1946. He has resigned from Simplot to take the new post.

* * *

Harold J. Alsted, general sales manager of Sprout, Waldron & Co., Inc., Muncy, Pa., announces that **Raymond D. Whitcomb** will serve the process industries in the Northern Illinois-Southern Wisconsin territory.

* * *

J. E. Totman, President of the **Summers Fertilizer Company**, was recently appointed by the United States District Court of Maryland, as one of the trustees of **Brooklyne Chemical Works, Inc.** of Baltimore, Maryland, manufacturers of Copper Sulphate and processors of other chemical by-products. Mr. Totman's appointment was the result of a special request of the Court that a businessman with chemical experience, not connected in any way with the bankrupt, should be selected as one of the three trustees.

* * *

James C. Totman, Assistant Manager of **Summers'** Bangor, Maine office, was elected a Representative to the Maine Legislature in the recent State Election. He is also a member for a three year term of the Bangor City Council.

* * *

Arthur F. C. Van Den Bergh, Director General of the **Diamond Fertilizer & Chemical Co., Ltd.** of London, England, accompanied by Mrs. Van Den Bergh, arrived in New York on September 23 on the Mauretania. They expect to remain in this country visiting friends in Baltimore and New York until October 11. Mr. Van Den Bergh was elected a Director of the **Summers Fertilizer Company, Inc.** at its annual meeting September 28.

* * *

Frank T. Page has been made manager of the New York export sales office of **Phillips Chemical Company's** fertilizer sales division it is announced by President **K. S. Adams.** In 1943 he became associated with Phillips in the crude oil purchase and sales division of the supply and transportation department.

* * *

The **Barrett Division**, Allied Chemical & Dye Corporation announces the following changes in personnel:

Walter S. Colvin has been appointed Sales Manager, Direct Application Materials, Midwestern District, with headquarters at South Point, Ohio.

Clifford Camp, Sales Manager, direct application Materials, Southern district, will continue to be located at Columbia, South Carolina.

Borden S. Chronister, Chief Agronomist, Southern District, now has headquarters at Barrett's new office in Richmond, Va. Mr. Chronister was formerly located at Hopewell, Va.

C. A. Graft is now devoting his entire time to sales and service work on fertilizer manufacture materials, in New England, New Jersey, New York and Pennsylvania. **P. V. Whiting**, a new Barrett representative, is taking over sales of "Arcadian," the American Nitrate of Soda and "A-N-L" Brand Fertilizer Compound in this same territory.

Jack F. Dulaney, a new representative, will handle sales and service on fertilizer manufacture materials in Alabama, Mississippi and western Tennessee. Mr. Dulaney will be located at Montgomery, Alabama.

* * *

L. A. Watt, director of development for **Monsanto Chemical Company's** organic chemicals division, has been appointed special assistant to the division's general manager, it was announced by general manager **W. G. Krummrich.**

A. T. Loeffler, general manager of the company's New York branch office, will succeed Mr. Watt. The changes will take place January 1, 1951.

In his new position, Mr. Watt will serve as an advisor on development matters in addition to handling special assignments. Mr. Loeffler is expected to begin the transaction to his new assignment soon.

Mr. Watt, a leader in the organization and planning of chemical development, became director of Monsanto's organic chemicals division development department when it was formed in 1943. He has been with the company since 1919, serving successively as head of the St. Louis analytical and control laboratories, technical advisor in the sales department, manager of sales in the central division and director of the technical service department.

* * *

Mathieson Chemical Corporation's Southwestern plants, formerly operated as a group, have been formed into separate operating divisions with the following management:

Joseph Mullen, Jr., has been appointed operating manager of the Little Rock (Arkansas) operations which consist of fertilizer and acid plants. **H. T. Galt** has been appointed assistant operating manager at Little Rock.

James S. Gilliam has been named operating manager, sulphur recovery operations, consisting of sulphur recovery plants at McKamie and Magnolia, Arkansas.

* * *

R. T. Braun has been made operating manager of Southwestern acid plants operations, consisting of sul-

phuric acid plants at Port Arthur and Beaumont, Texas, and Bossier City, Louisiana.

W. S. Miller has been appointed operating manager of the Houston (Texas) operations, and John R. Beatty, assistant operating manager. The Houston operations consist of fertilizer and acid plants at Pasadena, a sulphur plant at Houston, and an engineering department for servicing all the southwestern plants.

St. Regis Triples Coating Facilities

Facilities for coating kraft paper with polyethylene have been tripled by St. Regis Paper Company to meet the demand for specialty papers and multiwall paper shipping sacks containing this thermoplastic protective barrier ply.

The company, working at a stepped-up tempo to meet new demands for plastic coated papers, announced that its second, and larger polyethylene coating machine has been placed in commercial production at the Carthage, New York paper mill. The first coater to be built by any multiwall bag manufacturer went into operation more than a year ago at the St. Regis bag plant in Oswego, New York.

Stephens-Adamson Announce Products

Three new products, all improvements or adaptations of equipment previously offered by Stephens-Adamson Mfg. Co., Aurora, Illinois, have been announced in new bulletins available to the fertilizer industry on request.

The Natural Frequency Conveyor, which helps avoid vibration transmitted to supporting structures. Bulletin 950 covers this. A Swivel-Piler, conveyor mounted, which is designed to extend the storage range of fixed or portable conveyors. Bulletin 650 tells this story. A wheel-mounted Swivel-Piler, designed for ground level storage is detailed in bulletin 550.

Write them at Aurora; Belleville, Ontario or at Los Angeles for these bulletins.

OBITUARIES

Clifton A. Woodrum, President, American Plant Food Council, suddenly October 6, in Washington, of Coronary Thrombosis.

Mrs. H. C. Burrous, mother of Mrs. Russell Coleman, NFA President, September 5, at her home in West Point, Miss.

D. C. Evans, 32, Assistant Sales Manager, Florida Agricultural Supply Co., Division of Wilson & Toomer, as the result of injuries received in a traffic accident.

John H. Jordan, 68, retired assistant manager of the farm chemical section of Grasselli Chemicals, and with them for more than 43 years, in a Delaware hospital.

James T. Rawls, 83, pioneer phosphate man, at his home in Dunnellon, Florida, September 12.

NFA Banquets Control Committee

The annual dinner of the Chemical Control Committee of the National Fertilizer Association was held October 5 at the Mayflower Hotel, Washington.

Bronze Tablet Unveiled At Station's Anniversary Fete

A bronze tablet, commemorating the site of the first agricultural experiment station in America, was unveiled at the 75th Anniversary Celebration of the Connecticut Agricultural Experiment Station, September 28.

Funds for the commemorative tablet were raised by a group of interested Connecticut residents, who presented it to the Station through the State Development Commission. The formal presentation was made by a member of the Commission. A member of the Experiment Station Board of Control accepted the tablet on behalf of the Station.

"Davison Story" Interesting Book

Davison Chemical Corporation, Baltimore has published a brochure titled "The Davison Story" which gives concisely and in well-illustrated form the past, present and future of the concern.

KELLOGG

(Continued from page 22)

out perpetuating inefficient production methods.

Progress has been relatively rapid considering the traditional background of farming. Before the war, British farmers furnished about one-third of the food needed; in a couple of years they will be producing one-half of it, or possibly a bit more. Increased mechanization, more use of fertilizers, better fitting of crops and soil management practices to local soil types, and especially improved farm management systems with more economic use of labor, land, and materials need special emphasis. Toward these ends both research and advisory services are expanding to meet the needs of the farmers.

Agricultural development is also receiving emphasis in the colonies. Difficulties arising from poor planning in the great "groundnut (peanut) scheme" of East Africa have stimulated interest in African potentialities and, it is hoped, taught high-level administrators that agricultural settlement is a highly technical business.[1] In the beginning, the Ministry of Food didn't even seek the services of the able soil scientists in Britain itself who could have saved them much later embarrassment. But it appears that the lesson, even though very expensive, has been learned. Within the Colonial Office itself, and available to it through several research institutes, are highly skilled soil scientists and other agriculturists who can plan for steady economic expansion in Africa of great benefit to both Britain and the native people in the territories. But progress does not lie along the lines of gigantic schemes for individual crops, of course, but for combinations of food crops, industrial crops, and livestock in communities where the other resources—forests, water, and minerals—are also appropriately developed. A well-planned program of planimetric surveys, based on aerial photographs, with provisions for topographic, hydrologic, geological, and soil surveys is under way.

Finally, one must emphasize the cordial and effective working relationships between British and American soil scientists and other agriculturists. The results of research in either country are used fully in the other as much as if the work were jointly administered. Cooperation extends to Africa as well as in Britain itself. We may expect more British soil scientists in the United States and opportunities for American soil scientists to study in Britain and Africa. Such cooperation more than doubles the results for all.

Reykjavik, Iceland
September 4

Many Americans have recently discovered Iceland, and more will certainly do so now that it offers a convenient stopover on regular flights to Europe. The country offers a unique combination of the quaint and the bold. The scenery is too big to be spoiled by commercialism even if anyone tried, and no one has.

Besides very bright green fields and grassy plains and hillsides, there are wind-swept stretches of volcanic lava and cinders and rugged mountains with living glaciers in the high places, although permanent ice and snow covers only eight percent of the country.

The whole of the country has been formed from volcanic ejecta. Most of this is very old, even before the last glacial period (1200 years or so ago), but small eruptions occur now and then. Mt. Heckla, the most active volcano, gave a dramatic show in 1947. There are many boiling mud pots and hot springs. Some farms and many glass houses are heated with this water, and considerably more than one-half of Reykjavik, a modern capital city of 55,000, is heated this way.

The population stands at about 135,000 for the whole country. Slightly less than one-third of the people live on farms, on some 6,000 of them in various parts of the island, not counting part-time farmers. Perhaps another one-third live directly or indirectly from the fishing industry. (Iceland sits in the midst of some of the richest fishing waters in the world.) Others are employed in many small secondary industries based partly on local products and more on imported raw material.

The Icelanders are a modern people, in basic cultural values perhaps more like Americans than Europeans, willing to take chances and to break traditions, but speaking the old language of the Vikings, now preserved only in books of old Norse and among these lively folks.

Icelanders love flowers and

1. Those interested in this controversial scheme will find a good treatment in **The groundnut affair** by Alan Wood. The Bodley Head, London. 1950.

books. Most houses have plants and a great many have a wide variety of flowers and vines inside. Certainly there are more book stores in Reykjavik by far than in any other city of comparable size in the world. No illiteracy exists in Iceland.

The basis of Iceland agriculture is grass—both improved grassland and range. Here the improved grassland (tun) used for hay and pasture is regarded as arable or cultivated land, even though rarely plowed after breaking. Now it amounts to somewhat over 100,000 acres. Around 2,000 acres are used for intertilled crops—potatoes, turnips, and vegetables like cabbage, cauliflower, carrots, and lettuce. The improved land is now increasing at about 2,500 or more acres annually. Responsive soil is available for a large increase; but no one knows just how much. Plans for soil classification and mapping are being made now, partly to guide this expansion and partly as a basis for differential recommendations on drainage, fertilization, and cropping on the different types of soil.

Small grains, oats and barley, are now grown a little on the earliest-warming mineral soils. Probably they can be greatly increased by proper soil selection, fertilization to hasten early growth and final maturity, and the sowing of adapted varieties. At first at least, success will be most likely on fully mechanized special farms where seeding may be done as early as possible and with facilities for drying the grain after harvest.

Oats and oats and peas together are used for forage, especially during the first one to three years on new, reclaimed peaty soils.

Iceland has hardy native breeds of sheep, dairy cattle, and small horses or ponies. Unfortunately, three new sheep diseases, of which two are quite serious, were accidently introduced about 15 years ago. Intense pathological researches are underway, but no successful treatment has been discovered. The affected areas are quarantined and the diseases are fairly well checked.

Considering the small acreage of improved land and the recency of introduction, fertilizer use is very high. On a well-managed dairy farm near Reykjavik, for example, an an-

nual application of 65 pounds of N, 50 pounds of P_2O_5, and 50 pounds of K_2O per acre is used on grass. Some farmers use nitrogen and farmyard manure on the improved grassland. But many soil types are especially deficient in phosphorus, which becomes noticeable as soon as nitrogen fertilizer is used. For potatoes, larger amounts are used, say 120 pounds of N, 120 pounds of P_2O_5, and 180 pounds of K_2O per acre. But, of course, the amounts and ratios used vary with the type of soil.

Iceland has considerable serious soil erosion. Probably the larger part of this is the normal result of slipping on hillsides and blowing of yet unstabilized ash and cinders. Frost action is especially severe because of the alternate freezing and thawing in winter. Certainly a great deal of the erosion has been accelerated by overgrazing, especially with sheep, and on soils so deficient in nitrogen and phosphorus that vegetation returns only very slowly on the slip scars or after its destruction by hot ashes. Orderly study is urgently needed to make possible accurate estimates of the optimum carrying capacity of different types of soil as a basis for better control of grazing. Although all shades of opinion are articulate, no one knows how much of the erosion is normal and how much accelerated.

Beginning about 20 years ago, hot water from the thermal springs is used for heating glass houses. Now about 17 acres are under glass, and much more can and will be developed. Nearly one-half of the space is used for flowers. Tomatoes and cucumbers occupy the remainder, except for a few grapes and even bananas.

During the war and immediately afterward, fishing was so profitable to Iceland that it neglected its agriculture. This is now seen as a great mistake. Research and advisory services are being strengthened as a basis for orderly reclamation and soil improvement. The very security of the nation depends on it.

Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill., announces a new packaged power unit called Link-Belt Motogear. Full information is given in their new 16 page book No. 2247. Write for it.

Kraft Bag Issues Brochure

Kraft Bag Corp., makers of heavy-duty, multi-wall paper shipping sacks, has just issued a colorful brochure entitled "Dependable." It draws a parallel to the sun and the stars for the Company's dependability as a source and as a service, and illustrates the various types of shipping sacks the company makes in its two completely integrated plants—St. Marys, Ga. and Gilman, Vt. Brochure may be obtained by addressing: Harry C. Lawless, Sales Mgr., Kraft Bag Corp., 630 Fifth Ave., New York 20, N. Y.

Figures On Fertilizer Sales

The department of agronomy, Ohio State University, has just released figures on the amount of fertilizer sold in the State from January 1 to June 30, 1950. Total sales of mixed fertilizers for this period amounted to 584,156 tons as compared to 575,889 tons for the same period last year. The leading grade, 2-12-6, accounted for 182,985 tons of the total; the second-place grade, 3-18-9, for 356,628 tons and the third-place grade, 3-12-6, for 15,163 tons. During the period 24,157 tons of phosphate materials, 11,804 tons of nitrogen materials and 98 tons of potash materials were marketed separately.

FERTILIZER TAX TAG SALES AND REPORTED SHIPMENTS
(In Equivalent Short Tons)
Compiled by The National Fertilizer Association

STATE	August		Calendar Year Cumulative January July		Fiscal Year Cumulative July June	
	1950	1949	1950	1949	1949 50	1948 49
Virginia	39,735	36,379	519,782	504,318	700,210	684,893
N. Carolina	2	15,795	1,433,033	1,268,777	1,682,365	1,724,824
S. Carolina	26,500	13,744	713,335	771,345	905,759	998,512
Georgia	20,105	8,929	963,471	1,022,944	1,173,518	1,276,385
Florida	34,990	42,134	617,445	551,271	1,038,777	863,557
Alabama	13,933	8,270	856,580	903,904	989,812	1,063,216
Tennessee	9,478	5,663	387,762	372,017	473,781	502,304
Arkansas	9,694	4,529	303,571	279,432	357,548	355,585
Louisiana	8,179	7,044	209,127	190,687	260,925	254,566
Texas	23,808	20,210	346,681	302,010	547,179	499,154
Oklahoma	2	10,469	92,132	77,290	142,830	116,260
TOTAL SOUTH		173,166	6,442,919	6,243,995	8,272,704	8,339,336
Indiana	71,355	50,820	567,064	491,559	870,908	872,395
Kentucky	45,751	22,031	417,373	342,745	565,454	535,998
Missouri	46,394	32,850	335,370	306,605	460,699	472,163
TOTAL MIDWEST	163,500	105,711	1,319,807	1,140,909	1,897,061	1,880,556
GRAND TOTAL		278,877	7,762,726	7,384,904	10,169,765	10,219,392

ORGNICS: The market on Organics is firm with demand in excess of available supplies of fertilizer grade material. The three major producers of Domestic Nitrogenous are in a sold up position for the entire new season. Prices of Domestic Nitrogenous are nominally $4.10 to $4.50 per unit of Ammonia f.o.b. production points in bulk. Limited lots of foreign Nitrogenous have been quickly taken up by buyers at $5.50 to $5.75 per unit of Ammonia CIF Atlantic ports.

CASTOR POMACE: There are no offerings by the producers in the market at present. Last sales reported were at $32.50 per ton in bags f.o.b. Northeastern production points.

DRIED GROUND BLOOD: This market has strengthened and the Chicago price is around $9.50 per unit of Ammonia in bags and $9.00 in bulk. New York market is approximately the same.

POTASH: Demand continues heavy and movement is primarily against contracts already written. Production is at capacity levels with movement steady except for occasional boxcar shortages. No changes in prices have been noted.

GROUND COTTON BUR ASH: Due to heavy curtailment in the Texas cotton crop, major producers are not at present willing to quote until better estimate of cotton crop can be made.

PHOSPHATE ROCK: Movement is seasonal and steady against contracts with Domestic acidulators. Prices continue firm.

SUPERPHOSPHATE: Market on Superphosphate is steady for normal grades with supply and demand rather well balanced. Demand for Triple Superphosphate, however, exceeds supply.

SULPHATE OF AMMONIA: Movement is steady against Domestic contracts with no surplus at any point. Prices remain steady, although one producer is reported to have raised his price $3.00 per ton.

AMMONIUM NITRATE: Both imported and Domestic production is heavily under contract for the new season. Effective today, September 15th, Canadian material has advanced in price $5.50 per ton. It is now priced at $63.00 per ton in bags f.o.b. Port Robinson, Ontario.

NITRATE OF SODA: Demand is seasonal and stocks entirely adequate to meet the call. Prices remain unchanged.

CLASSIFIED ADVERTISING

FOR SALE: Complete ¼ Ton Utility Mixing Plant completely reconditioned and painted. Will quote delivered basis within 350 miles of Greenville. Delta Fertilizer Works, Greenville, Mississippi.

STATEMENT OF OWNERSHIP, ETC.
OF
COMMERCIAL FERTILIZER
AS OF OCTOBER 1, 1930

1. *Publisher, editor, etc.:*
Publisher: Walter W. Brown Publishing Co., Inc., 75 Third St., N.W.
Editor: Bruce Moran, 75 Third St., N.W.
Business Manager: V. T. Crenshaw, 75 Third St., N.W.

2. *Owner: (If corporation, name of corporation, and immediately below the names of all stockholders owning 1% or more of stock.):*
Walter W. Brown Publishing Co., Inc., 75 Third St., N.W.
Ernest H. Abernethy, 75 Third St., N.W.
Virginia T. Crenshaw, 75 Third St., N.W.

3. *Bondholders, mortgages, etc.:*
None.

Signed: ERNEST H. ABERNETHY, *President.*

Sworn to and subscribed before me, a Notary Public, this 24th day of September, 1930.

MARY CRENSHAW, *Notary Public.*
My commission expires April 19, 1932.

1850

Congratulations

1950

TO THE FERTILIZER INDUSTRY ONE HUNDRED YEARS YOUNG

If pride in achievement is justifiable, the Fertilizer Industry may feel justly proud of its long record of assistance to American agriculture. During its first century of existence great progress has been made.

The coming century presents a many sided challenge:

1. Increasing Populations.
2. Increasing Standards of Living.
3. Increasing Economic Problems.
4. And above all, an Increasing and Urgent Demand for the Preservation of the Fertility and Productivity of our Greatest Heritage—The Good Earth.

We pledge our best efforts to the attainment of all constructive objectives.

P.C.A. SALT of the EARTH RED MURIATE

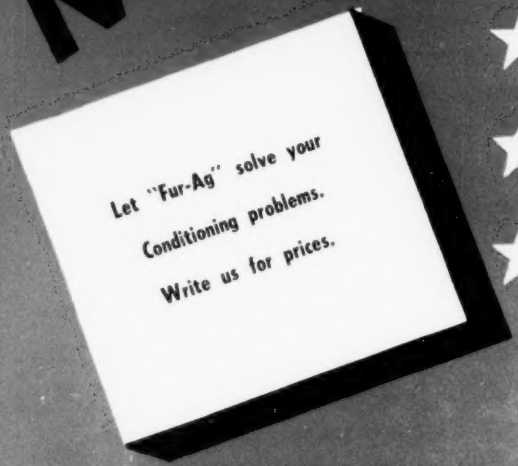
POTASH COMPANY OF AMERICA
Carlsbad, New Mexico

GENERAL SALES OFFICE . . . 50 Broadway, New York, N.Y.
MIDWESTERN SALES OFFICE . . . First National Bank Bldg., Peoria, Ill.
SOUTHERN SALES OFFICE . . . Candler Building, Atlanta, Ga.

FERTILIZER MATERIALS

FOREIGN AND DOMESTIC

- INSECTICIDAL AND INDUSTRIAL CHEMICALS
- SULPHATE OF AMMONIA
- ORGANIC AMMONIATES
- SULPHUR



EXCLUSIVE DISTRIBUTORS FOR DUVAL SULPHUR AND POTASH COMPANY

VEGETABLE OIL MEALS & FEEDSTUFFS

ASHCRAFT-WILKINSON CO.

Home Office

ATLANTA, GEORGIA

NORFOLK, VA.
CHARLESTON, S. C.

Cable Address
ASHCRAFT

TAMPA, FLA.
GREENVILLE, MISS.